Final Integrated Natural Resources Management Plan (INRMP) Channel Islands Air National Guard Station

December 2018

Prepared for:

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Cooperative Agreement:
W9128F-16-2-0021-0008

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SIGNATURE PAGE

The Channel Islands Air National Guard Station (hereafter CIANGS) Integrated Natural Resources Management Plan (INRMP) has been prepared for the 146 Airlift Wing (AW) to manage significant natural resources in support of the military mission. Significant natural resources include the presence of at least one federally listed endangered species - the least Bell's vireo (*Vireo bellii pusillus*). The CIANGS INRMP meets the intent of the Sikes Act (16 USC § 670a–670l, 74 Stat. 1052).

To the extent that resources permit, the US Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife (CDFW), and the California Air National Guard (CAANG) by signature of their agency representative, do hereby enter into a cooperative agreement for the conservation, protection, and management of natural resources present on CIANGS. This agreement may be modified and amended by agreement of the authorized representatives of the three agencies. This agreement will become effective upon the date of the last signatory and shall continue in full force for a period of 5 years or until terminated by written notice to the other parties, in whole or in part, by any of the parties signing this agreement.

By their signatures below, or an enclosed letter of concurrence, all parties grant their concurrence with and acceptance of the following document.

Approving Officials:

WARD.KEITH.Y.1080299091 Digitally signed by WARD.KEITH.Y.1080299091 Date: 2019.01.30 16:32:44 -08'00'

30 Jan 2019

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ANNUAL REVIEW DOCUMENTS

This page is used to certify the annual review and coordination of the CIANGS INRMP.

With the signature below, this acknowledges that the annual review and coordination of the INRMP has occurred for the specified year.

Year: 2019

[ ]	Date
CIANGS Commander	
[ ]	Date
US Fish and Wildlife Service	
[ ]	Date
California Department of Fish and Wildlife	

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Year: 2020

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[ ] US Fish and Wildlife Service	Date
[ ] California Department of Fish and Wildlife	Date

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Year: 2021

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Year: 2022

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[ ] US Fish and Wildlife Service	Date
[ ] California Department of Fish and Wildlife	Date

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Record of Review –In accordance with the Sikes Act, Department of Defense Instruction (DoDI) 4715.03, *Natural Resources Conservation Program*, Department of Defense Manual (DoDM) 4715.03, *INRMP Implementation Manual*, and Air Force Instruction (AFI) 32-7064, *Natural Resources Management*, an INRMP is required to be reviewed annually to ensure plans and projects remain current, and every 5 years for operation and effect. Annual reviews and updates are accomplished through annual meetings led by the base Environmental Manager (EM) and attended by the USFWS, the State Fish and Wildlife Agency, and, if required, the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA NMFS). During the annual meetings, the actions taken over the previous year are discussed and actions to be taken over the coming year are discussed and agreed to. The meeting is followed up in writing for concurrence by the EM and the representatives from the USFWS and the state fish and wildlife agency, the California Department of Fish and Wildlife (CDFW). As part of the annual and 5-year reviews, the EM shall hold meetings with internal stakeholders to ensure all personnel and tenants are informed of INRMP requirements.

ACRONYMS

°F	degrees Fahrenheit
146 AW	146 Airlift Wing
146 AW/CC	Wing Commander, 146 Airlift Wing
146 AW/CE	Civil Engineering, 146 Airlift Wing
146 AW/CEV	Environmental Management Office, 146 Airlift Wing
146 AW/LG	Legal, 146 Airlift Wing
146 AW/PA	Public Affairs Office, 146 Airlift Wing
146 AW/SE	Flight Safety Office, 146 Airlift Wing
146 TAW	146 Tactical Airlift Wing
AFB	Air Force Base
AFI	Air Force Instruction
ANG	Air National Guard
ANGB	Air National Guard Base
ANGS	Air National Guard Station
BA	Biological Assessment
BASH	Bird/Wildlife Aircraft Strike Hazard
BHWG	Bird/Wildlife Hazard Working Group
BLM	Bureau of Land Management
BMPs	Best Management Practice
BO	Biological Opinion
CATEX	Categorical Exclusion
CAANG	California Air National Guard
CASWAP	California State Wildlife Action Plan
CalEPA	California Environmental Protection Agency
Cal-IPC	California Invasive Plant Council
CalTrans	California Department of Transportation
CDFFP	California Department of Forestry and Fire Protection
CDFW	California Department of Fish and Wildlife
CDWR	California Department of Water Resources
CECOS	Civil Engineer Corps Officers School
CEC	Commission for Environmental Cooperation
CEQ	Council on Environmental Quality
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CIANGS	Channel Islands Air National Guard Station
CIP	Common Installation Picture
cm	Centimeter
CNDDB	California Natural Diversity Database
CNPS	California Native Plants Society
CWA	Clean Water Act
DEPARC	Defense Environmental Programs Annual Report to Congress
DoD	Department of Defense
DoDI	DoD Instruction
DoI	Department of Interior
DUSD	Deputy Under Secretary of Defense
EA	Environmental Assessment

EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EMS	Environmental Management System
EO	Executive Order
EQ	Environmental Quality
ESA	Endangered Species Act
ESOH	Environmental, Safety, and Occupational Health
FE	Federally Endangered
Fe	Iron
FEMA	Federal Emergency Management Agency
FIRM	Federal Insurance Rate Map
ft bgs	feet below ground surface
FY	Fiscal Year
GIS	Geographic Information System
HUC	Hydrologic Unit Code
IICEP	Interagency and Intergovernmental Coordination for Environmental Planning
INRMP	Integrated Natural Resources Management Plan
IPM	Integrated Pest Management
IPMC	Integrated Pest Management Coordinator
ISO	International Standards Organization
MAAFFS	Massive Airborne Fire Fighting System
MAFFS	Modular Airborne Fire Fighting System
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
msl	mean sea level
NAVFAC SW	Naval Facilities Engineering Command Southwest
NBVC	Naval Base Ventura County
NCCP	Natural Community Conservation Plan
NCDC	National Climatic Data Center
NEPA	National Environmental Policy Act
NGB	National Guard Bureau
NHPA	National Historic Preservation Act
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NWP	Nationwide Permits
ODD	Oxnard Drainage Ditch
POL	Petroleum, Oils, and Lubricants
PLS	Planning Level Survey
RGP	Regional General Permits
RWQCB	Regional Water Quality Control Board
SAIA	Sikes Act Improvement Act
SE	State Endangered
SMMNRA	Santa Monica Mountain National Recreation Area
SWANCC	Solid Waste Agency of Northern Cook County
SWAP	State Wildlife Action Plan
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board

T&E	Threatened and Endangered
US	United States
USACE	United States Army Corps of Engineers
USAF	United States Air Force
USC	United States Code
USDA	United States Department of Agriculture
USDA-WS	United States Department of Agriculture Wildlife Services
US EPA	United States Environmental Protection Agency
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VCWPD	Ventura County Watershed Protection District
VCWMA	Ventura County Weed Management Area
WRCC	Western Regional Climate Center

1.0 EXECUTIVE SUMMARY

The Sikes Act Improvement Act of 1997, 16 US Code (USC) § 670a et seq., as amended, (herein referred to as the Sikes Act) requires federal military installations with significant natural resources to develop a long-range INRMP and implement cooperative agreements with other agencies. The Sikes Act is implemented through Department of Defense (DoD) and US Air Force (USAF) Instructions and Manuals. The conservation measures discussed in the INRMP help manage water resources, support the reduction of bird/wildlife aircraft strike hazard (BASH) risk, manage federal and state-listed species, and sustain natural resources. The CIANGS INRMP is intended to be in support of and consistent with the intent of the Sikes Act.

The CIANGS INRMP is the primary guidance document and tool for managing natural resources on CIANGS by the CAANG. The CIANGS occupies approximately 206 acres of federally owned land under the command of the 146 Airlift Wing (146 AW) in Ventura County in southern California, contiguous with Naval Base Ventura County (NBVC) Point Mugu. The CIANGS supports both parts of the 146 AW's mission; wartime mission to provide tactical delivery of personnel, equipment and supplies with units providing support and maintenance associated with the C130-J Hercules transport planes and humanitarian mission to provide humanitarian support during emergencies as well as providing aerial firefighting support. The natural resources management of CIANGS must be conducted in a way that provides for sustainable land use, complies with applicable environmental laws and regulations, and provides for no net loss in the capability to support the military mission. The CIANGS INRMP provides a structure and plan to manage natural resources more effectively and ensure that CIANGS remains available to support the installation's military mission into the future.

Specific goals in the CIANGS INRMP are supported by its objectives and work plans, as well as management strategies and specific actions. Goals and objectives are listed in **Section 8** of this plan, and projects and activities are summarized in **Section 9**. The CIANGS INRMP provides a description of the installation, the military mission, the environment on the installation, and specific plans and strategies for natural resource management designed for sustainable military training. The implementation of the CIANGS INRMP will ensure the successful accomplishment of the military mission while promoting adaptive management that sustains ecosystem and biological integrity and provides for multiple uses of natural resources. It also will ensure that management efforts of the CIANGS at these facilities is consistent and integrated with as little redundancy as possible.

2.0 GENERAL INFORMATION

2.1 Purpose and Scope

The CIANGS INRMP is the primary guidance document and tool for natural resource management at CIANGS that provides for sustainable, healthy ecosystems, complies with applicable environmental laws and regulations and real estate leases and licenses, and provides for "no net loss" in the capability of military installation lands to support the military mission of the installation. The Installation Commander can use the CIANGS INRMP to manage

natural resources more effectively to ensure that installation lands remain available and in good condition, capable of supporting the installation's military mission over the long term.

The CIANGS INRMP is consistent with the Sikes Act as required by the DoD, the Air Force and the National Guard Bureau (NGB). It was developed because of the presence of federal and state-listed endangered and threatened species, and regulated water resources on CIANGS. A multiple-use approach is implemented to allow for the presence of mission-oriented activities, as well as protecting environmental quality through the efficient management of natural resources.

2.2 Management Philosophy

2.2.2 Ecosystem Management

Natural resources at CIANGS are managed with an ecosystem management approach as directed by AFI 32-7064 and DoDI 4715.03. Ecosystem management is defined as the management to conserve major ecological services and restore natural resources while meeting the socioeconomic, political and cultural needs of current and future generations. The goal of ecosystem management on military lands is to ensure that military lands support present and future test and training requirements while conserving, improving, and enhancing ecosystem integrity. The ecosystem management program for CIANGS incorporates the following elements as described in **Table 1**.

Biodiversity is the degree of variation of life within a given ecosystem, region, or even the entire planet. The DoD's challenge is to manage for biodiversity in a way that supports the military mission. Specific management practices identified in the CIANGS INRMP have been developed to enhance and maintain biological diversity within CIANGS ecosystems. Ecosystem management includes biodiversity conservation and invasive species control as integral parts of ecosystem management. Air National Guard (ANG) installations maintain or reestablish viable populations of all native species when practical and consistent with the military mission. ANG installations also identify the presence of exotic and invasive species and implement programs to control and/or eradicate those species. Finally, when feasible, ANG installations develop joint control strategies with other federal, state, and when feasible local cooperating agencies and adjacent landowners to increase the effectiveness of control measures and for the benefits illustrated in **Figure 1**.

Table 1. Elements and Principles of Ecosystem Management	
DoDI 4715.03 Elements	
1	Avoid single-species management and implement an ecosystem-based multiple species management approach, insofar as that is consistent with the requirements of the Endangered Species Act (ESA)
2	Use an adaptive management approach to manage natural resources-related issues such as climate change
3	Evaluate and engage in the formation of local or regional partnerships that benefit the goals and objectives of the INRMP
4	Use the best available scientific information in decision-making and adaptive management techniques in natural resource management
5	Foster long-term sustainability of ecosystem services
AFI 32-7064 Principles	
1	Maintain or restore native ecosystem types across their natural range, where practical and consistent with the military mission
2	Maintain or restore ecological processes such as wildland fire and other disturbance regimes, where practical and consistent with the military mission
3	Maintain or restore the hydrological processes in streams, floodplains, and wetlands, when feasible
4	Use regional approaches to implement ecosystem management on an installation by collaboration, when feasible, with adjoining property owners, other DoD components, as well as other federal, state, and local agencies
5	Provide for outdoor recreation, agricultural production, harvesting of forest products, and other practical utilization of the land and its resources, provided that such use does not inflict long-term ecosystem damage or negatively impact the ANG mission

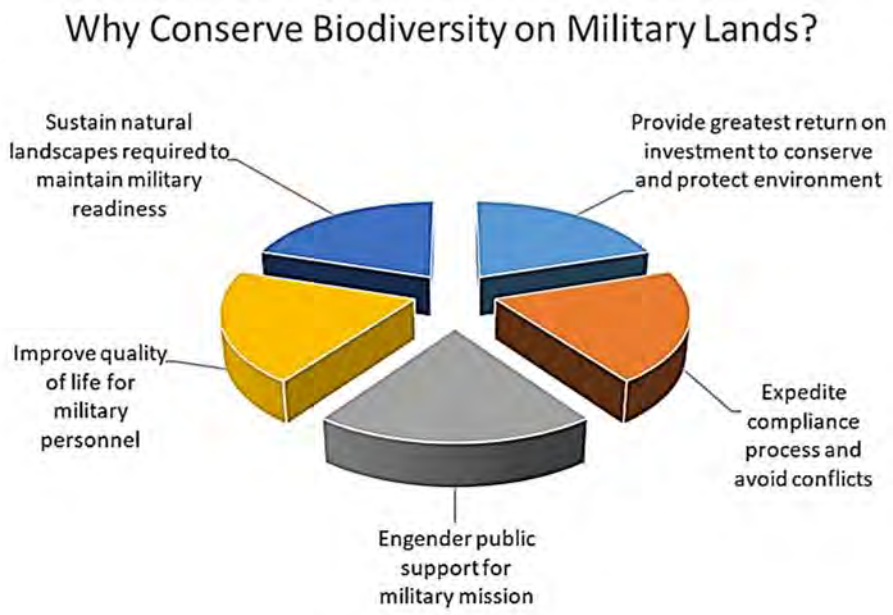

Figure 1. Why conserve biodiversity on Military Lands
**Adapted from Keystone Center, 1996.*

2.3 Authority

2.3.1 Natural Resources Law, Regulations & Policy

The ANG, USFWS and CDFW determined an INRMP was required for the CIANGS due to the presence of significant natural resources thereby necessitating conservation and management. DoDI 4715.03, Natural Resources Conservation Program, identifies the DoD policies and procedures concerning natural resources management and INRMP reviews, public comment, and endangered species consultation. INRMPs are required to be jointly reviewed by the USFWS, state fish and wildlife agency, and ANG installation for operation and effect on a regular basis, but not less often than every 5 years. Minor updates and continued implementation of an existing INRMP do not require need for public comment. Major revisions to an INRMP do require an opportunity for public review. The degree of endangered species consultation when updating or revising an INRMP depends upon specific projects identified in the INRMP and the amount of past consultation. Most updates and revisions will not require formal consultation. ESA Section 7 consultation is required for INRMPs that contain projects that may affect federally-listed species or designated critical habitat. The need for such consultation should become apparent during the review for operation and effect and implemented if necessary as part of an INRMP revision.

2.3.2 National Environmental Policy Act Compliance

The Environmental Impact Analysis Process (EIAP) is the process by which federal agencies facilitate compliance with environmental regulations. The primary legislation affecting these agencies' decision-making process is the National Environmental Policy Act of 1969 (NEPA; 42 USC § 4321 et seq.). NEPA requires that any organization using federal monies, proposing work on federal lands or requiring a federal permit consider potential environmental consequences of proposed actions. The law's intent is to protect, restore, or enhance the environment through well-informed decisions.

The Council on Environmental Quality (CEQ) was established under NEPA for implementing and overseeing federal policies as they relate to this process. The adoption of an INRMP can be considered a major federal action as defined by Section 1508.18 of the CEQ regulations. This requires an analysis of potential environmental impacts for the implementation of an INRMP. Although a complete Environmental Assessment (EA) is not necessarily required as individual actions and projects undergo their own NEPA analysis.

CEQ regulations require intergovernmental notifications prior to making any detailed statement of environmental impacts. Through the Interagency and Intergovernmental Coordination for Environmental Planning (IICEP) process, CIANGS notifies relevant federal, state, and local agencies and allows them sufficient time to make known their environmental concerns specific to a Proposed Action. Comments and concerns submitted by these agencies during the IICEP process are subsequently incorporated into the analysis of potential environmental impacts. This coordination fulfills requirements under Executive Order (EO) 12372, *Intergovernmental Review of Federal Programs*, and AFI 32- 7061, *Environmental Impact Analysis Process*. Furthermore, public participation in decision making on new proposals is required. Consideration of the views and information of all interested persons promotes open communication and enables better decision-making. Agencies, organizations, and members of the public with a potential interest in the Proposed Action, including minority, low-income, disadvantaged, and Native American groups, are urged to participate.

The EIAP for the implementation of CIANGS's first INRMP (May 2013) was conducted in accordance with NEPA, CEQ *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act* (40 Code of federal Regulations [CFR] §1500-1508), and 32 CFR 989. The EIAP and decision-making process for the Proposed Action (implementation of the CIANGS INRMP) involved a thorough examination of all environmental issues pertinent to the action proposed. Impact evaluations of the 2013 CIANGS INRMP determined that no significant environmental impacts would result from implementation of the Proposed Action or any identified alternative. This determination is based on thorough review and analysis of existing resource information, and coordination with knowledgeable, responsible personnel from the 146 AW and other relevant local, state, and federal agencies. The EIAP for the implementation of the 2013 CIANGS INRMP did not include an analysis of effects for individual actions or projects. Individual actions or projects that have the potential to impact the environment will be analyzed separately in accordance with the NEPA process. A new EIAP is not required for this INRMP update.

If a future action or project has the potential to impact the environment, the initial step in compliance with NEPA is to complete USAF Form 813 "Request for Environmental Impact Analysis". The form is prepared to aid in the development of the assessment, providing information on the proposed action and its alternatives, purpose, and potential environmental effects. This allows the proponent to identify potential environmental impacts early and facilitates making a determination about whether an EA or an Environmental Impact Statement (EIS) might be required for a specific action. Some sections are prepared by the proponent and other sections are prepared by the Environmental Management Office (146 AW/CEV). If the action is not covered by a categorical exclusion, then an EA is prepared to determine if there are potential significant impacts. If potential significant impacts are identified, either while completing USAF Form 813 or during the EA, then an EIS is prepared. The majority of natural resources management actions in this INRMP are covered by categorical exclusions (CATEX).

2.3.3 Responsibilities

The updated CIANGS INRMP has been organized to ensure the implementation of year-round, cost-effective management activities and projects that meet the requirements of the installation. Various personnel and organizations within the CIANGS that are responsible for the implementation of the INRMP are described in the following subsections.

2.3.3.1 Installation Commander

The Installation Commander (146 AW/CC) oversees the installation and is responsible for ensuring the goals and objectives of the INRMP are implemented to the fullest extent practicable based on funding and manpower availability. The Installation Commander is the official signatory for the CIANGS INRMP.

2.3.3.2 ANG NGB/A4AM Natural Resources Program Manager

The ANG NGB/A4AM Natural Resources Program Manager (ANG NR Program Manager) is the technical point of contact on all-natural resource related activities for the ANG. The ANG NR Program Manager tracks DoD and USAF policies and approves funding for projects identified as a priority in the CIANGS INRMP. The development of projects included in the INRMP and any deviations from those projects will be submitted to the ANG NR Program Manager for review.

Decisions resulting from those reviews will be a cooperative effort between the ANG NR Program Manager and the CIANGS EM.

2.3.3.3 Environmental Manager

The EM plans, budgets, approves, and oversees all environmental activities performed on the installation and is responsible for ensuring that activities associated with the implementation of this INRMP adhere to applicable federal, state, local, and USAF environmental regulations and guidelines. The EM should independently review deviation from the projects proposed in this INRMP. Projects proposed in the CIANGS INRMP are reviewed by the EM and the ANG NR Program Manager. Persons responsible for implementation of the INRMP are required to attend the Civil Engineer Corps Officers School (CECOS) DoD Natural Resources Compliance course (http://www.netc.navy.mil/centers/csfe/cecos/CourseDetail2.htm#tab25).

2.3.3.5 Base Civil Engineer

The Base Civil Engineer (CE) plans, budgets, approves, and oversees all maintenance and construction activities performed on the installation. All maintenance- and construction-related projects or management activities proposed in this INRMP should be approved by the Base CE to ensure that (1) funding is available and (2) these projects are complementary to the installation's comprehensive planning processes.

2.3.3.6 Legal Office

The Legal Office is responsible for ensuring the implementation of the management objectives contained within the CIANGS INRMP meet all of the CAANG's and the 146 AW's regulatory and statutory requirements that pertain to natural resources management. The Legal Office will review any future natural resources management proposals and alert the 146 AW/CC, 146 AW/CEV, and Base Civil Engineering (146 AW/CE) should there be any regulatory conflicts or shortfalls. In addition, the legal office will keep participating INRMP parties informed of any new statutes or regulations that might affect natural resources management.

2.3.3.7 Flight Safety Office

The CIANGS Flight Safety Office is responsible for development, implementation and management of the BASH Program and reviewing BASH incidents. The Flight Safety Office also ensures that bird/wildlife strikes resulting from aircraft at CIANGS are accurately documented and reported to the EM and the USAF BASH Team. In addition, the Flight Safety Office participates in the NBVC BASH Hazard Working Group (BHWG), which conducts meetings to evaluate and refine strategies for the reduction of BASH risk on NBVC Point Mugu. The Flight Safety Office is responsible for coordinating with and providing required information on BASH activities with the EM at CIANGS and with NBVC Point Mugu.

2.3.3.8 Wing Safety Office

The Wing Safety Office, in conjunction with the EM, is responsible for implementing all activities presented in this INRMP that pertain to the BASH Reduction Program. The Wing Safety Office also ensures that bird/wildlife strikes that occur with aircraft assigned to units at CIANGS are accurately documented and reported to the USAF BASH Team. In addition, the Wing Safety Office ensures that the Bird Hazard Working Group conducts meetings on the reduction of the BASH threat on the installation.

2.3.3.9 Airfield Management

Airfield Management is responsible for ensuring that the airfield is acceptable and appropriated for flight activity.

2.3.3.10 Operations and Maintenance

Operations and Maintenance personnel are responsible for all grounds maintenance activities on the installation. In addition, this office will comply with the habitat management protocols established in this INRMP to accomplish mission requirements while complying with natural resource management goals consistent with the mission and regulatory compliance requirements. The Operations and Maintenance personnel will also periodically review the type of grounds maintenance equipment to determine if new or additional equipment is needed for the proper maintenance of the installation's landscapes.

2.3.3.11 US Department of Agriculture – Wildlife Services

US Department of Agriculture – Wildlife Services (USDA-WS) is responsible for monitoring nuisance wildlife that have the potential to create an aircraft strike hazard. USDA-WS personnel support activities that pertain to the CIANGS and NBVC Point Mugu BASH Program and are responsible for wildlife depredation requirements within the airfield. USDA-WS personnel are responsible for coordinating their activities with the Environmental Management Office, Flight Safety Office and NBVC Point Mugu.

2.3.3.12 Pest Management

The Installation Pest Management Coordinator (IPMC) is responsible for the protection of real estate, control of potential disease vectors or animals of other medical importance, control of undesirable or nuisance plants and animals (including insects), and prevention of damage to natural resources. Pest management personnel utilize Integrated Pest Management (IPM) approaches and are responsible for the implementation of the IPM Plan.

2.3.3.13 US Fish and Wildlife Service

The USFWS is a signatory of the INRMP and provides input regarding natural resource projects and operational component plans. The USFWS alerts the EM and/or the ANG NR Program Manager whenever new species added to the federal threatened and endangered species lists have the potential for inhabiting CIANGS. In addition, the USFWS, when feasible, will support wildlife and vegetation surveys conducted at the CIANGS property.

2.3.3.14 California Department of Fish and Wildlife

The CDFW is a signatory of the INRMP and provides input regarding natural resource projects and operational component plans. The CDFW alerts the EM and/or the ANG NR Program Manager whenever new species added to the state threatened and endangered species lists have the potential for inhabiting CIANGS. In addition, the CDFW, when feasible, will support CIANGS wildlife and vegetation surveys conducted at the CIANGS property.

2.3.3.15 Public Affairs Office

The Public Affairs Office is responsible for the coordination of public access for events at CIANGS. The Public Affairs Office serves as the point-of-contact to interface between the

Commander and civilian groups interested in the installations for environmental, educational, or other purposes.

2.4 Integration with Other Plans

By its nature, an INRMP is multidisciplinary and provides the summary for natural resources at a specific installation. As a result, information from an INRMP is incorporated into other plans and other plans are written to support the INRMP. The CIANGS plans include the following:

- Integrated Pest Management Plan (IPM Plan) – plan for management of pest species, including nuisance wildlife and invasive species, to minimize impact to mission, natural resources and the environment (CAANG 2012).
- Stormwater Pollution Prevention Plan (SWPPP) – plan for management of stormwater and water-borne pollution (CAANG 2018a).
- Oil and Hazardous Substance Integrated Contingency Plan – plan for management of petroleum, oil, and lubricants (CAANG 2018b).

NBVC Point Mugu is located adjacent to CIANGS. The mission of NBVC Point Mugu is to provide full weapons testing and evaluation for the Navy as well as the DoD, and to provide the military, including tenant commands, with full-service fleet support for air operations. Land use at NBVC Point Mugu is dominated by natural and operational constraints that require large expanses of open space (NBVC Point Mugu 2013). Most natural resources on NBVC Point Mugu are associated with Mugu Lagoon, including an estuarine coastal salt marsh and additional wetland acreage. Due to the proximity of NBVC Point Mugu, it is critical that the CIANGS INRMP is consistent with the NBVC Point Mugu INRMP (2013). CIANGS consults the NBVC Point Mugu INRMP to ensure that their respective goals, objectives, and strategies agree. Point Mugu plans incorporated into the CIANGS INRMP include the following:

- BASH Management Plan for NBVC Point Mugu. Provides summary of the BASH program on NBVC Point Mugu, including techniques, processes, responsibilities and management recommendations. The 146 AW is considered a tenant organization in the NBVC Point Mugu BASH Management Plan, and therefore helps implement it (NBVC 2018a).
- NBVC Point Mugu INRMP (2018b). Guides the NBVC Point Mugu Commander in the management of natural resources to support the installation mission, while protecting and enhancing installation resources for multiple use, sustainable yield, and biological integrity.

In addition, the CIANGS INRMP integrates and coordinates its activities with the following plans from other agencies.

- California's Wildlife Action Plan (CASWAP). Manages public and private lands in the best way possible to benefit all California's wildlife, and especially those with declining populations. The CASWAP identifies habitat areas that demonstrate the greatest conservation need and potential and establishes specific conservation goals for the enhancement and protection of these sites (CDFW 2012). The CASWAP is available at https://www.wildlife.ca.gov/SWAP.
- Ventura County General Plan – Coastal Area Plan. Identifies goals and policies related to shoreline access and public trails, development in scenic areas, coastal hazards, and coastal bluffs; environmentally sensitive habitat areas; cultural resources; transportation; public services; and more (Ventura County 2008). CIANGS is located in the South Coast

Zoning District. The Ventura County General Plan – Coastal Area Plan is available at https://vcrma.org/ventura-county-general-plan. The Ventura County General Plan is currently being updated and is expected to be adopted in the spring of 2020.

3.0 INSTALLATION OVERVIEW

3.1 Location and Area

CIANGS is located approximately 50 miles north of Los Angeles, near the City of Oxnard in unincorporated Ventura County (**Figure 2**). The Channel Islands station is immediately northwest of the NBVC Point Mugu (**Figure 3**). The ANG is a joint-user of the NBVC Point Mugu's primary runway and Air Traffic Control Tower. The CIANGS is bordered by agricultural land to the north, west, and east.

CIANGS comprises approximately 206 acres and is rectangular shaped, although pointed or triangular shaped at its northern and southern ends (**Figures 3-4**). The installation is south of Hueneme Road, and southwest of the Pacific Coast Highway/California State Highway 1 (CAANG 2018a).

Figure 2. CIANGS Regional Map

Figure 3. CIANGS Vicinity Map

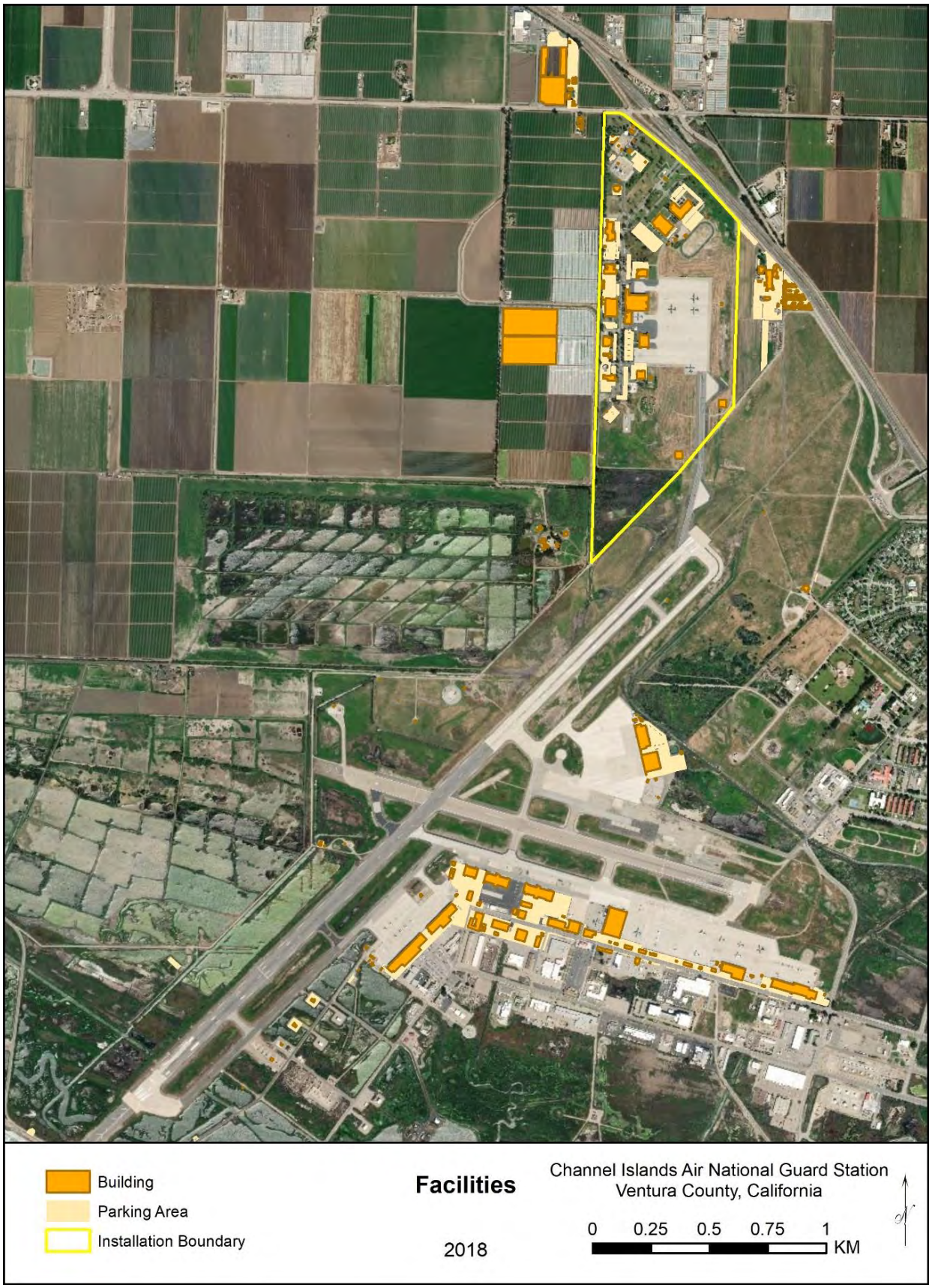

Figure 4. CIANGS Facilities Map

3.2 Installation History

In order to reduce security risks and constraints faced at the CIANGS, the 146 Tactical Airlift Wing (146 TAW), later re-designated as the 146 AW, sought relocation to an approximately 206-acre, privately owned property adjacent to NBVC Point Mugu (NGB 1985). What was to become CIANGS was initially 239 acres of agricultural property, with approximately 210 acres in production at the time, adjacent to the naval facility at the southeastern edge of the Oxnard Plain, one of California's most productive agricultural areas. The property was bounded by agricultural activity to the north and to the west, as well as a produce company and a mobile home park to the east.

The property for CIANGS was acquired from San Miguel Produce in 1988 and the installation was dedicated in 1990. Facilities included maintenance and fuel cell hangars, a combined dining facility, medical clinic, band rehearsal facility, transportation facility, and supply, headquarters, and operations buildings on approximately 206 acres. In 1989, an additional 16.76 acre wetland parcel was acquired from the Point Mugu Game Preserve, bringing the total acreage of the facility to approximately 206 acres.

3.3 Military Missions

The ANG mission is two-fold with both federal and state components. The 146 AW provides global military airlift capability to state and federal agencies. The 146 AW consists of the 146 Operations Group, including the 115 Airlift Squadron and 146 Aeromedical Evacuation Squadron; the 146 Missions Support Group; the 146 Maintenance Group; and the 146 Medical Group. The wing primarily provides tactical airlift and medical support for federal emergencies and security force and disaster relief within the state through the use of its Lockheed C-130 military transport aircraft. The wing is also one of four C-130 units nationally that contribute to the suppression of wildfires through the use of Massive Airborne Fire Fighting System (MAAFFS). MAAFFS units are self-contained, portable aerial firefighting systems, which can discharge up to 3,000 gallons of water or fire retardant. Since 1974, the 146 AW has used Modular Airborne Fire Fighting System (MAFFS) units supplied by the United States Forest Service (USFS). The 146 FW has four C-130s with mounted MAFFS. The MAFFS units are requested only when all other fire service aircraft are committed to major, extended incidents (California Department of Forestry and Fire Protection [CDFFP] 2018). The unit also provides support for transient military aircraft. The state mission is to protect life and property, provide disaster relief and ensure public safety when called upon by the Governor of California.

3.4 Surrounding Communities

In addition to NBVC Point Mugu, the area immediately surrounding and comprising CIANGS consists of a homogenous array of agricultural and open space. Areas to the east, northeast, and north are zoned primarily for agricultural use. Land use in these areas also includes rural residential development and industrial facilities associated with agricultural operations. The Ormond Beach area is located to the west of the installation and is zoned for open space and industrial land use. The nearest residential area to CIANGS is Tierra Vista located approximately 2.5 miles to the northeast of CIANGS.

CIANGS is located near the City of Oxnard and is a part of the unincorporated portion of Ventura County within the Central Coast Zoning District. The population of Ventura County in 2017 was 854,223, representing a population increase of 3.7% since 2010 (US Census Bureau 2017).

Proposed future development in the vicinity of CIANGS is limited by agricultural preserve contracts and greenbelt agreements. Also in the vicinity of the installation are extensive beaches, wetlands, and agriculture, as well as the Santa Monica Mountains and NBVC Point Mugu.

3.5 Local and Regional Natural Areas

CIANGS is located in close proximity to five major recreational and open space areas, including the Santa Monica Mountains National Recreation Area (SMMNRA), Point Mugu State Park, and Boney Mountain State Wilderness as well as the Ventura County Game Reserve and Point Mugu Game Reserve.

4.0 PHYSICAL ENVIRONMENT

4.1 Climate

The climate of Ventura County, including CIANGS, is moderately humid, with moist winters and warm, dry summers. Between the years 1981 and 2018 the warmest months were August and September, both with a monthly average maximum temperature of 75.5 degrees Fahrenheit (°F). During this same period, the month of December was the coldest with an average minimum temperature of 45.5°F. The average annual precipitation is 15 inches and average monthly rainfall ranges from approximately 0 to 3 inches (NOAA 2018). Rainfall occurs primarily between the months of November and March, with almost no precipitation events occurring during June, July, and August (Western Regional Climate Center [WRCC] 2011). Snowfall is an irregular occurrence in the region with the last measureable event occurring in 1949.

The climate of CIANGS is characteristic of a Mediterranean climate with warm, dry summers and cool, wet winters. Wind speed and direction near the CIANGS varies seasonally. Between the months of March and September, westerly to northwesterly onshore winds are dominant between mid-morning and early evening. The onshore summer winds are typically 4 to 10 knots but can be significantly stronger in March, April, and May. From October through February, moderate northeasterly offshore winds of 4 to 10 knots are typical during the night as well as the morning. These winds shift to somewhat stronger, westerly, onshore winds in the afternoon. The region is affected by Santa Ana winds, which are strong down slope winds originating in the Great Basin and the upper Mojave Desert. The warm, extremely dry Santa Ana winds can reach 35 knots and can exacerbate wildland fires under drought conditions (NOAA 2011).

In consideration of future climate resiliency scenarios at CIANGS, climate is predicted to grow considerably warmer and drier during this century. For CIANGS, the models all indicate some shift in the growing season over the next century (The Nature Conservancy 2012). Due to the proximity to the Pacific Ocean, local changes may differ from overall regional changes and are harder to predict. Overall with the likely decrease in rainfall and increase in temperature, the resources most likely to be impacted by climate change are water resources, special status species, invasive species, and vegetation. If current trends continue, projected effects in the vicinity of CIANGS may include (Moser et al. 2012):

- Increased drought, due to reduced precipitation, which may negatively affect sensitive species as well as the farm economy.

- Extreme heat heaves, which would likely increase the summer energy demand for cooling.
- Increased wildfire risk due to both warmer and drier conditions.
- Potential shifts in vegetation communities to those that favor more dry conditions.
- Rising sea level which may result in increased coastal flooding.

Information regarding the effects of climate change in California can be found at the California Climate Change Portal at: http://www.climatechange.ca.gov/climate_action_team/index.html.

4.2 Landforms

CIANGS is in the Pacific Border physiographic province that extends from Washington to California. The Pacific Border province is characterized by large coastal mountains that extend for most of the length of the Pacific Coast. This topography reflects the results of tectonic activity occurring when the North American Plate collided with and began to override the Farallon Plate, producing a subduction zone along the Pacific Coast of North America. The average elevation in the vicinity of CIANGS ranges from 10 feet above mean seal level (msl) to 3,000 feet above mean sea level (msl) (CAANG 2018a). The average elevation of Channel ANGS itself is approximately 15 feet above msl (CAANG 2018a; **Figure 5**).

4.3 Geology and Soils

The California Coastal Ranges were created by tectonic activity and the local mountainous terrain is tectonically active. A combination of ongoing tectonic uplift and the prevalence of easily eroded sedimentary deposits in adjacent mountains have resulted in high rates of erosion and sediment yield in coastal watersheds throughout the region (Schoenherr 1992). The Ventura Basin consists of more than 40,000 feet of sediments, resulting in coastal lowland known as the Oxnard Plain. The uppermost sedimentary layers of the Oxnard Plain are composed of quaternary alluvium. Additional unconsolidated water-bearing soils and sediments known as the San Pedro and the Santa Barbara formations underlie the alluvium (National Resources Conservation Service [NRCS] 1995).

The CIANGS is underlain by the Camarillo-Hueneme-Pacheco soil series (NRCS 2011), characterized by level, very deep, poorly drained loams and loamy sands (**Figure 6**). These soils, occurring mainly on the Oxnard Plain, formed in deep, stratified alluvium derived predominantly from sedimentary rocks (Edwards et al. 1970). The soils of this association are some of the most productive in the area and are used for irrigated vegetables, field crops, lemons, and strawberries as well as for urban development (University of California 2011). Portions of the original soils underlying the CIANGS have been physically altered (i.e., cut, shaped, graded, excavated, or covered) to create large, level areas, with high load support capabilities designed to accommodate aircraft and support flight operations (NGB 2011).

4.4 Hydrology

CIANGS is located within the Town of Port Hueneme, within the Nyland-Frontal Pacific Ocean watershed in the McGrath Lake-Frontal Pacific Ocean Sub-Basin, within the

Calleguas Sub-Basin which is within the Ventura-San Gabriel Coastal Basin (NGB 2014). There is a forested wetland on CIANGS (wetland parcel), though there are no streams or tributaries found within the installation boundaries (**Figure 7**). However, the installation is located within the Oxnard Drainage Ditch (ODD) system, a complex network of drainage ditches located within Oxnard Drainage District. ODD #2 is adjacent to the western boundary of CIANGS and transports agricultural and stormwater runoff from surrounding sources. An onsite stormwater ditch system channels runoff from the installation site into two on-site concrete holding tanks. From there a system of concrete-lined ditches directs the installation surface water runoff into NBVC Point Mugu and eventually out to the Pacific Ocean via Mugu Lagoon. Oxnard Drainage Ditch #2 is listed as a 303 (d) impaired waters (SWRCB 2011).

Drainage Ditch

As shown on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) from January 2010, CIANGS is located within Zone X, indicating that the installation is located outside the 100-year and 500-year floodplain (FEMA 2010). Although CIANGS is situated in a region that has high potential for flooding, the installation is not influenced by overflows from either Calleguas Creek or Revolon Slough (USACE 2013). Still, natural drainage patterns near the plane ramp to the airfield have been extensively modified to preclude flooding.

The Fox Canyon Aquifer is the principal water-bearing aquifer underlying CIANGS (Ventura County Wetland Protection District [VCWPD] 2015). A total of three groundwater wells are located on CIANGS, one of which is permitted by Ventura County and produces groundwater from the Fox Canyon Aquifer.

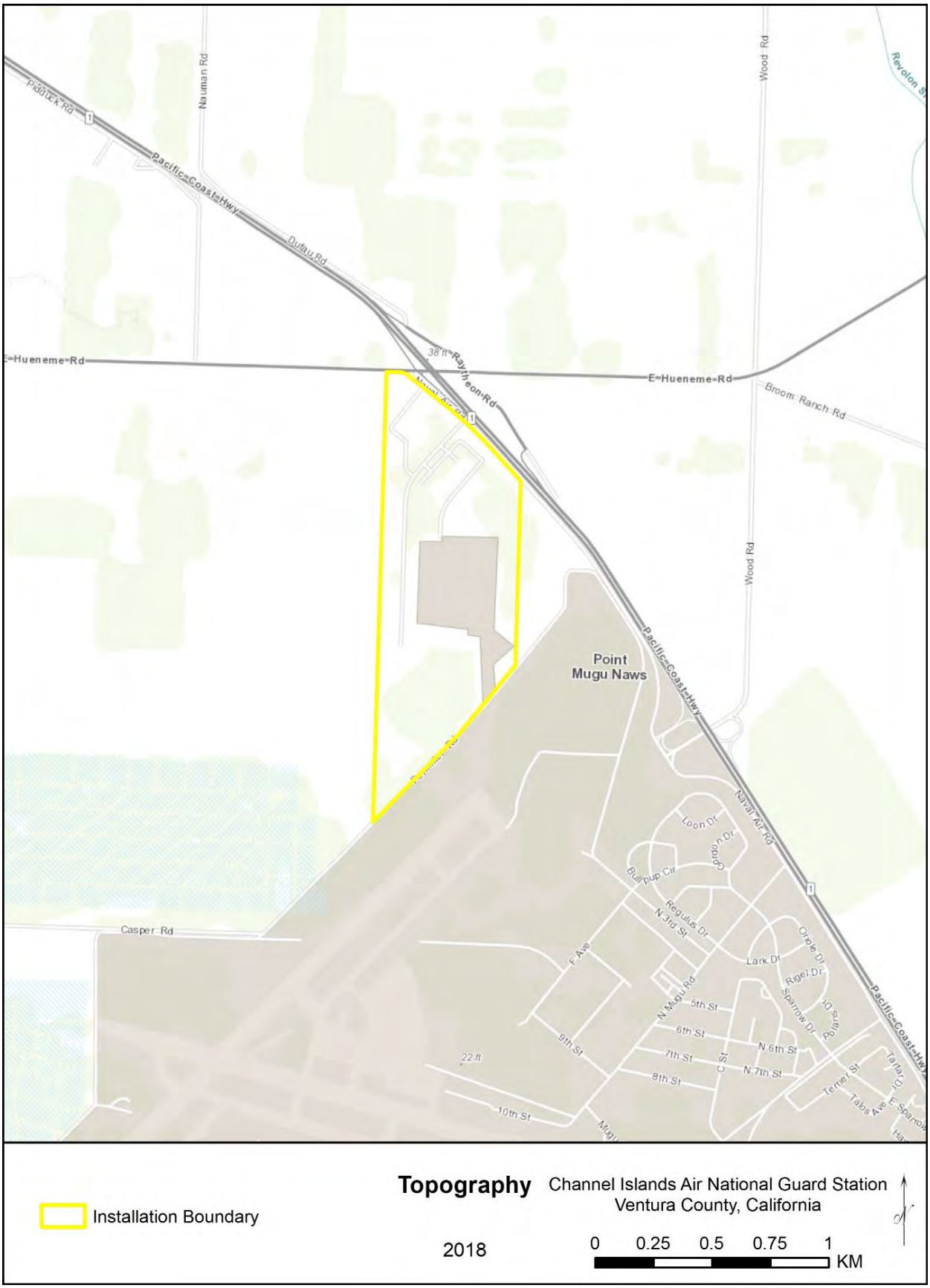

Figure 5. CIANGS Topography Map

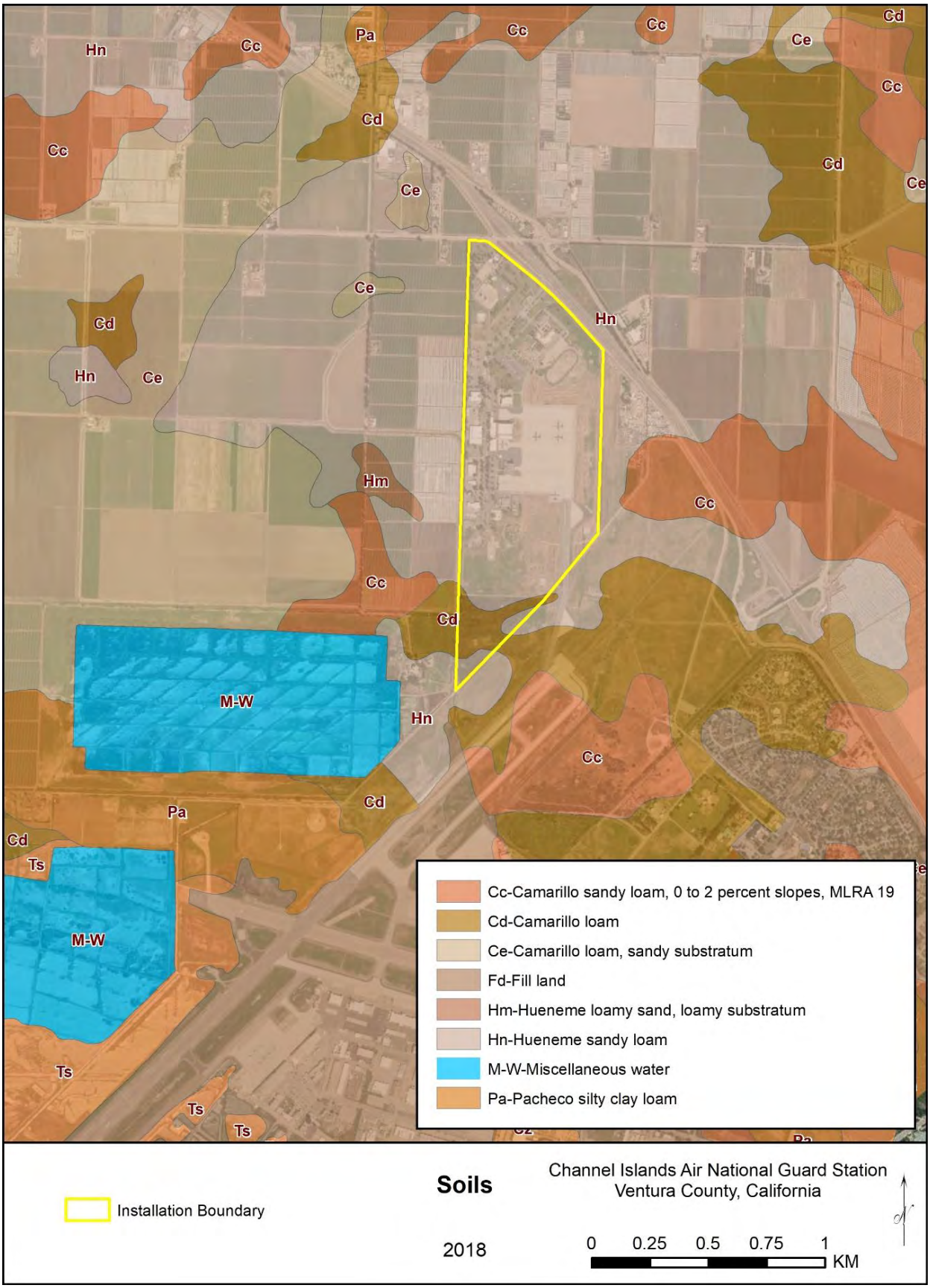

Figure 6. CIANGS Soils Map

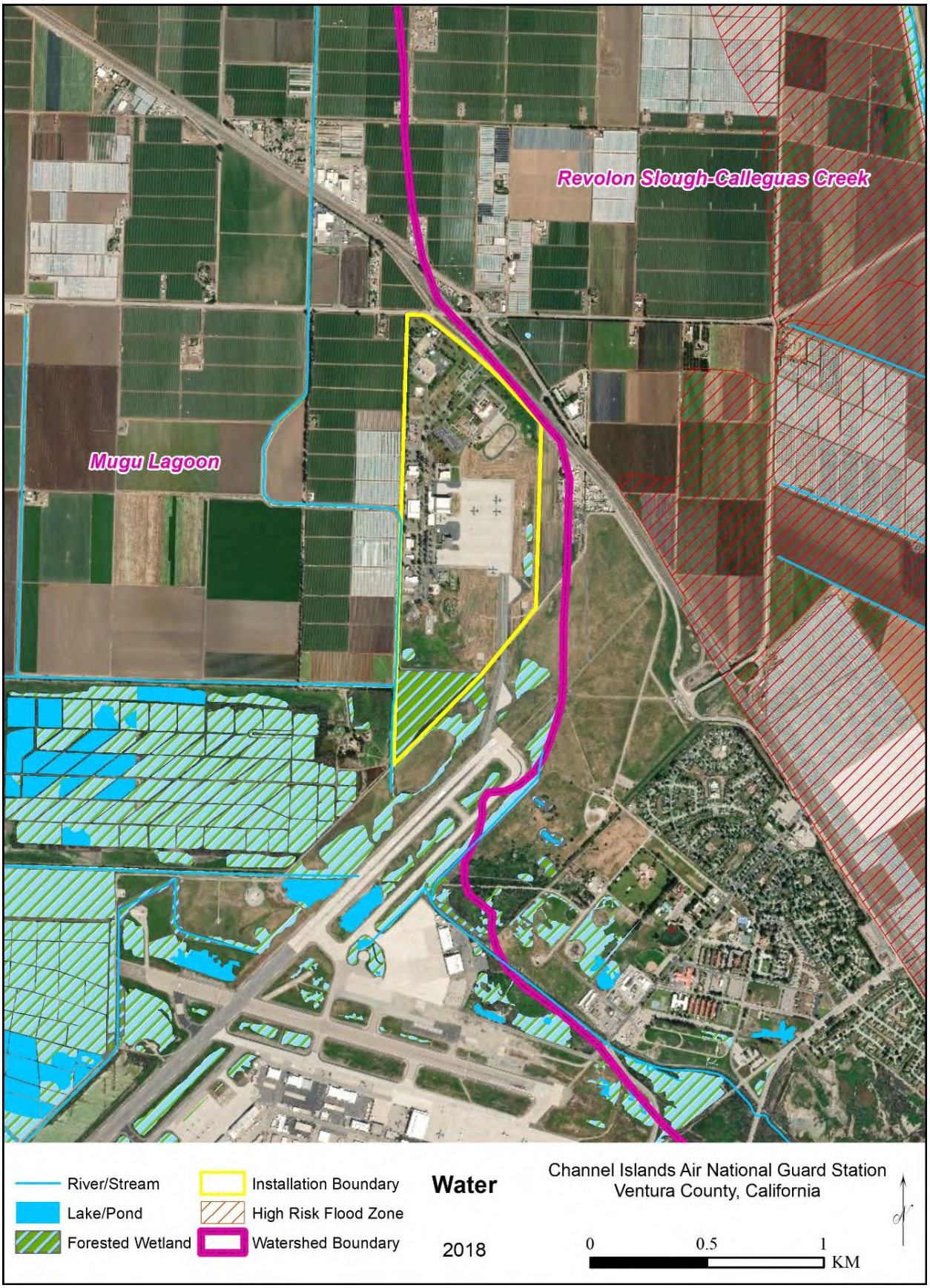

Figure 7. CIANGS Water Resources Map

5.0 ECOSYSTEMS AND THE BIOTIC ENVIRONMENT

5.1 Ecosystem Classification

CIANGS is in the California Coastal Chaparral Forest Shrub Province (Bailey et al.1995) and the Mediterranean California Ecoregion (Commission for Environmental Cooperation [CEC] 1997). In general, the coastal plains in this area are characterized by fertile soils, which give rise to sagebrush and grassland communities, as well as riparian forests along streams. Exposed coastal areas support desert like shrub communities called coastal scrub, dominated by coyote bush (*Baccharis pilularis*) and California sagebrush (*Artemisia californica*). Most of the coastal plains and interior valleys within this province have been converted to urban use or irrigated agriculture (Bailey 1995, Griffith et al. 2016). The region surrounding CIANGS is no exception as it is surrounded on all sides by agricultural and urban development, except for NBVC Point Mugu. The installation itself has been largely converted from agricultural use to a maintained landscape dominated by non-native grasses and drought intolerant species not characteristic of the natural community.

5.2 Vegetation

5.2.1 Historic Vegetative Cover

The area surrounding CIANGS includes shrubland vegetation of chaparral mixed with areas of grassland and open oak woodlands, and agriculturally productive valleys. The installation itself was previously agricultural and has been largely converted to a landscaped vegetation community, dominated by non-native grasses and drought intolerant species not characteristic of the natural community.

5.2.2 Current Vegetative Cover

Based on current ground conditions and aerial imagery, vegetation communities and other land cover have been identified as Developed (approximately 133 acres, to include landscaping), Semi-disturbed Grasslands (approximately 56 acres), and Wetlands (approximately 17 acres) (ANG 2015).

<u>Developed Vegetation Communities:</u>
Developed facilities on the base are typically surrounded by landscaping, including manicured grasses and ornamental trees. These landscaped areas create a buffer around the facilities in order to meet the goal of Anti-Terrorism/Force Protection (AT/FP; CIANG 2015). However, the costs associated with maintaining these landscaped areas has led CIANGS to pursue means of restoring landscaping where feasible, to native vegetation communities.

<u>Semi-disturbed Grassland Vegetation Communities:</u>
The area between the developed areas and the wetland parcel consists of primarily mowed and maintained Bermuda grass (*Cynodon dactylon*). This area is maintained to minimize BASH risk (i.e., 7-14 inches tall Bermuda grass) and manage the stormwater retention tanks.

<u>Wetland Vegetation Communities:</u>
Two wetland areas are located on CIANGS that total 16.38 acres. Wetland A is an approximately 14.47-acre area, referred as the ‘wetland parcel’ located in the southern portion of the site.

Wetland B is a 1.91 acre palustrine emergent depressional wetland located on the eastern portion of the site east of the airplane ramp. Dominant vegetation in Wetland B is composed of hydrophytic vegetation Parish's glasswort (*Anthrocnemum subterminale*) and salt grass (*Distichis spicata*). Wetland B is routinely mowed and has low landscape connectivity, low biological diversity, and a high rate of invasive species.

In the recent past, the wetland parcel (Wetland A) was managed to attract waterfowl by creating a system of levees and berms that were seasonally flooded. This wetland no longer receives natural tidal flow due to adjoining development activities that have eliminated tidal connections. There are four major categories of vegetation communities with 11 different alliance/cover classes identified (NGB 2017):

- Woodland
    - Eucalyptus roves
- Wetland and Riparian
    - Arroyo willow thickets
    - Mulefat thickets
    - Alkali weed - saltgrass playas and sinks
    - Parish's glasswort patches
    - Alkali heath marsh
    - Salt grass flats
- Shrubland
    - Coyote brush scrub
- Herbaceous
    - Perennial pepperweed
    - Ruderal

Freshwater and upland species including arroyo willow (*Salix lasiolepis*), sandbar willow *(Salix exigua*) and mulefat (*Baccharis salicifolia*) are present along the edges of the parcel and on the levees surrounding the previously managed duckponds. Halophytic vegetation including pickleweed (*Salicornia pacifica)* and saltgrass is present within topographical depressions. The presence of pockets of alkali weed (*Cressa truxillensis*) that are typically found on the edge of salt marshes, where plants are never covered by salt water, suggests variability in soil salinity as a result of less frequent flooding and climate variations.

Some of the microhabitats noted within the parcel include areas dominated by saline herbs interspersed with native and non-native grasses including pickleweed, saltgrass, alkali mallow (*Malvella leprosa*), jaumea (*Jaumea carnosa)* and alkali heath (*Frankenia salina*) (CAANG 2013). There are also a few areas dominated by bulrush (*Schoenoplectus spp*.) and cattail (*Typha sp*.) interspersed with non-native grasses. There are also mixed-transitional habitats comprised of facultative wetland plant species and upland plant species, including coyote brush (*Baccharis pilularis*), western ragweed (*Ambrosia psilostachya*), and non-native plants including knapweed (*Centaurea sp*.), soft chess (*Bromus hordeaceus*), rip-gut brome (*Bromus diandrus*), common barley (*Hordeumvulgare*), arundo (*Arundo donax*), English plantain (*Plantago lanceolata*), curly dock (*Rumex crispus*), lambs quarters (*Chenopodium album*) bristly ox-tongue (*Picris echioides*), summer mustard (*Hirschfeldia incana*), white sweetclover (*Melilotus alba*), burclover (*Medicago polymorpha*), wild radish (*Raphanus sativus*) and spearscale (*Atriplex triangularis*). Gum trees (*Eucalyptus sp*.) are present along the edge of the parcel.

Table 2 lists all vascular plant species documented in the wetlands at CIANGS.

Table 2. Plant Species Observed in the Wetland on CIANGS

Scientific Name	Common Name	Form	Native/ Exotic
Amaranthus albus	tumbleweed	ah	exotic
Ambrosia psilostachya	western ragweed	ph	native
Artemisia douglasiana	mugwort	ph	native
Arthrocnemum subterminale	Parish's glasswort	ph	native
Atriplex lentiformis	quailbush	s	native
Atriplex prostrata	fat-hen	ah	exotic
Atriplex rosea	tumbling orache	ah	exotic
Atriplex semibaccata	Australian saltbush	ph	exotic
Baccharis glutinosa	salt marsh baccharis	ph	native
Baccharis pilularis	coyote bush	s	native
Baccharis salicifolia	mulefat	s	native
Bassia hyssopifolia	five-hooked bassia	ah	exotic
Bromus diandrus	ripgut brome	ah	exotic
Calystegia macrostegia	island false bindweed	phv	native
Carduus pycnocephalus	Italian thistle	ah	exotic
Carpobrotus edulis	iceplant	ph	exotic
Chamaesyce serpens	matted sandmat	aph	exotic
Chenopodium murale	nettle-leaved goosefoot	ah	exotic
Cirsium vulgare	bull thistle	ph	exotic
Conium maculatum	poison hemlock	ph	exotic
Cortaderia selloana	pampas grass	ph	exotic
Cotula coronopifolia	brass buttons	ph	exotic
Cressa truxillensis	alkali weed	ph	native
Cuscuta salina	saltmarsh dodder	ahv	native
Cynodon dactylon	Bermuda grass	ph	exotic
Distichlis spicata	salt grass	ph	native
Dysphania ambrosioides	Mexican tea	aph	exotic
Erigeron bonariensis	flax-leaved fleabane	ah	exotic
Erigeron canadensis	horseweed	ah	native
Erigeron sumatrensis	tropical horseweed	ah	exotic
Erodium cicutarium	common stork's bill	ah	exotic
Eucalyptus globulus	blue gum eucalyptus	t	exotic
Euthamia occidentalis	western goldenrod	ph	native
Foeniculum vulgare	sweet fennel	ph	exotic
Frankenia salina	alkali heath	ph	native
Heliotropium curassavicum var. *oculatum*	seaside heliotrope	ph	native
Helminthotheca echioides	bristly ox-tongue	aph	exotic
Heteromeles arbutifolia	toyon	s	native

Table 2. Plant Species Observed in the Wetland on CIANGS

Scientific Name	Common Name	Form	Native/ Exotic
Heterotheca grandiflora	telegraph weed	aph	native
Hirschfeldia incana	summer mustard	ph	exotic
Hordeum depressum	low barley	ah	native
Isocoma menziesii	Menzies' goldenbush	s	native
Jaumea carnosa	marsh jaumea	ph	native
Laennecia coulteri	Coulter's horseweed	ah	native
Lepidium latifolium	perennial pepperweed	ph	exotic
Lotus corniculatus	bird's foot trefoil	ph	exotic
Lycopersicon esculentum	tomato	ah	exotic
Malva nicaeensis	bull mallow	ah	exotic
Malva parviflora	common cheeseweed	ah	exotic
Malvella leprosa	alkali mallow	ph	native
Marrubium vulgare	horehound	ph	exotic
Medicago polymorpha	California burclover	ah	exotic
Melilotus albus	white sweetclover	abh	exotic
Melilotus indicus	annual yellow sweetclover	ah	exotic
Mesembryanthemum crystallinum	crystalline ice plant	ah	exotic
Myoporum laetum	myoporum	t	exotic
Nicotiana glauca	tree tobacco	ts	exotic
Pennisetum clandestinum	kikuyu grass	ph	exotic
Persicaria lapathifolia	pale persicaria	ah	native
Phoenix canariensis	Canary Island pine	t	exotic
Picris echioides	bristly oxtongue	aph	exotic
Plantago lanceolata	English plantain	aph	exotic
Polygonum aviculare ssp. *Depressum*	common knotweed	aph	exotic
Polypogon monspeliensis	rabbitsfoot grass	ah	exotic
Pseudognaphalium luteoalbum	cudweed	ah	exotic
Raphanus sativus	wild radish	abh	exotic
Ricinus communis	castor bean	s	exotic
Rumex crispus	curly dock	ph	exotic
Salicornia pacifica	pickleweed	ph	native
Salix lasiolepis	arroyo willow	t,ts	native
Salsola tragus	Russian thistle	ah	exotic
Schoenoplectus californicus	California bulrush	ph	native
Sisymbrium irio	London rocket	ah	exotic
Solanum douglasii	Douglas' nightshade	s	native
Sonchus asper	spiny sowthistle	ah	exotic
Sonchus oleraceus	sow-thistle	ah	exotic
Stipa miliacea	smilo	ph	exotic
Suaeda taxifolia	woolly sea blite	ah	native

Table 2. Plant Species Observed in the Wetland on CIANGS

Scientific Name	Common Name	Form	Native/ Exotic
Symphyotrichum subulatum var. *parviflorum*	annual saltmarsh aster	ph	native
Tetragonia tetragonioides	New Zealand spinach	ah	exotic
Typha angustifolia	narrow-leaved cattail	ph	native
Typha domingensis	southern cattail	ph	native
Xanthium strumarium	cocklebur	ah	native

Source: NGB 2014
Form: a= annual, p=perennial, h= herbaceous, s=shrub, t= tree, v= vine

5.3 Fish and Wildlife

Wildlife habitat at the installation is primarily associated with the wetland parcel, which provides adequate habitat for a number of wetland-related species within the region, including the federally endangered least Bell's vireo. Common mammals observed on CIANGS include coyotes, foxes, feral cats, rabbits, squirrels, and rodents. Carnivorous predators are an important component of the local ecosystem, providing a natural means of controlling potential pest populations and reducing BASH risk. Birds, mammals, and herpetofauna species recorded on or in the vicinity of CIANGS are described in **Tables 3-5**. For a list of species that could potentially occur on CIANGS, reference the NBVC Point Mugu INRMP.

Table 3. Bird Species at CIANGS	
Scientific Name	**Common Name**
Accipiter cooperii	Cooper's hawk
Agelaius phoeniceus	red-winged blackbird
Anas platyrhynchos	mallard
Ardea alba	great egret
Ardea herodias	great blue heron
Bubo virginianus	great horned owl
Buteo jamaicensis	red-tailed hawk
Buteo lineatus	red-shouldered hawk
Calypte anna	Anna’s hummingbird
Carduelis psaltria	lesser goldfinch
Carduelis tristis	American goldfinch
Carpodacus mexicanus	house finch
Cathartes aura	turkey vulture
Chamaea fasciata	wrentit
Charadrius vociferus	killdeer
Circus cyaneus	northern harrier
Cistothorus palustris	marsh wren
Corvus brachyrhynchos	American crow
Corvus corax	common raven
Dendroica petechial	yellow warbler
Egretta thula	snowy egret
Empidonax difficilis	pacific-slope flycatcher
Euphagus cyanocephalus	brewer's blackbird
Falco columbarius	merlin
Falco sparverius	American kestrel
Fulica americana	American coot
Geothlypis trichas	common yellowthroat
Guiraca caerulea	blue grosbeak
Hirundo rustica	barn swallow
Icteria virens	yellow-breasted chat
Icterus cucullatus	hooded oriole
Lanius ludovicianus	loggerhead shrike
Larus argentatus	herring gull
Larus californicus	California gull
Larus occidentalis	western gull
Melospiza melodia	song sparrow
Mimus polyglottos	northern mockingbird
Molothrus ater	brown-headed cowbird
Myiarchus cinerascens	ash-throated flycatcher
Numenius americanus	long-billed curlew
Nycticorax nycticorax	black-crowned night heron
Petrochelidon pyrrhonota	cliff swallow
Picoides pubescens	downy woodpecker
Pipilo crissalis	California towhee
Pipilo erythrophthalmus	spotted towhee
Plegadis chihi	white-faced ibis

Table 3. Bird Species at CIANGS	
Scientific Name	**Common Name**
Podiceps nigricollis	eared grebe
Psaltriparus minimus	bushtit
Quiscalus mexicanus	great-tailed grackle
Sayornis nigricans	black phoebe
Selasphorus sasin	Allen's hummingbird
Streptopelia decaocto	Eurasian collared dove
Sturnella neglecta	western meadowlark
Sturnus vulgaris	European starling
Tachycineta bicolor	tree swallow
Toxostoma redivivum	California thrasher
Troglodytes aedon	house wren
Tyrannus melancholicus	tropical kingbird
Tyrannus vociferans	Cassin's kingbird
Vireo bellii	least Bells' vireo
Vireo gilvus	warbling vireo
Wilsonia pusilla	wilson's warbler
Zenaida macroura	mourning dove
Zonotrichia leucophrys	white-crowned sparrow
Source: CAANG 2013, NGB 2016	

Table 4. Mammal Species with the Potential to Occur at CIANGS	
Scientific Name	**Common Name**
*Canis latrans**	coyote
*Didelphis virginianus**	opossum
Dipodomys sp.	kangaroo rat
Lepus californicus	black-tailed jackrabbit
Mephitis mephitis	striped skunk
Microtus californicus	California vole
Mus musculus	house mouse
Mustela frenata	long-tailed weasel
Neotoma fuscipes	dusky-footed woodrat
Ondatra zibethicus	muskrat
Peromyscus boylii	brush mouse
Peromyscus eremicus	cactus mouse
Peromyscus maniculatus	deer mouse
*Procyon lotor**	northern raccoon
Rattus rattus	house rat
Reithrodontomys megalotis	western harvest mouse
*Spermophilus beechyi**	California ground squirrel
*Sylvilagus audubonii**	desert cottontail
Tadarida brasiliensis	Brazilian free-tailed bat
Source: NBVC Point Mugu 2013, CAANG 2013 *indicates species documented on CIANGS	

Table 5. Herpetofauna Species with the Potential to Occur at CIANGS	
Scientific Name	**Common Name**
Amphibians	
Pseudacris regilla	Pacific chorus frog
Anaxyrus boreas	western toad
Pseudacris hyochondriaca hypochondriaca	Baja California treefrog
Xenopus laevis	African clawed frog
Reptiles	
Actinemys marmorata	Pacific pond turtle
Aspidoscelis tigris	tiger whiptail
Crotalus atrox	Pacific diamond-back rattlesnake
Diadophis punctatus	San Bernardino ring-necked snake
Elgaria multicarinata	southern alligator lizard
Lampropeltis getulus californiae	California kingsnake
Pituophis melanoleucus annectens	San Diego gopher snake
Plestiodon skiltonianus skiltonianus	Skilton's skink
Sceloporus occidentalis	western fence lizard
Trachemys scripta	red-eared slider
Thamnophis hammondii	two-striped garter snake
Uta stansburiana	side-blotched lizard
Source: NBVC Point Mugu 2013, CAANG 2013 *indicates species documented on CIANGS	

5.4 Threatened and Endangered Species and Species of Concern

Federal status as a threatened or endangered species is derived from the ESA of 1973 (16 USC §1531 et seq.) which is administered by the USFWS. The California Endangered Species Act (CESA) (Cal. Pub. Res. Code §2050 et seq.) provides CDFW with a mandate to conserve all state listed fish and wildlife species in California as well as the ecosystems upon which they depend. Eight priority species were identified (four birds, one reptile, one fish, one insect, and one plant) based on their regulatory status, known occurrence on or near CIANGS, or highly likely occurrence on CIANGS.

The least Bell's vireo is the only federally listed threatened and endangered (T&E) species that has been identified on the installation. They were first seen in 2000 and documented again from 2009-2011 flying from NBVC Point Mugu to adjacent wetland habitat on CIANGS. These observations were later confirmed through auditory surveys of the wetland parcel during other activities by BASH and NBVC Point Mugu personnel (CAANG 2013). The least Bell's vireo was not observed during a 2014 survey of the wetland parcel, however least Bell's vireos were reported at NBVC Point Mugu in 2015 (NGB 2016).

If any additional special status species are documented on CIANGS, they may become a priority listed species.

Priority Listed Wildlife Species:

- Fully protected California least tern (*Sterna antillarum browni*)
- Federally and state endangered least Bell's vireo (*Vireo bellii pusillus*)
- Federally and state endangered salt marsh bird's-beak (*Chloropyron maritimum* ssp. *maritimum*)
- Federally endangered tidewater goby (*Eucyclogobius newberryi*)
- State endangered Belding's savannah sparrow (*Passerculus sandwichensis beldingi*)
- State species of special concern Southwestern pond turtle (*Actinemys marmorata*)
- State species of special concern wandering skipper (*Panoquina errans*)
- State species of special concern yellow-breasted chat (*Icteria virens*)

5.5 Waters of the US, Wetlands, and Floodplains

Two jurisdictional wetlands approximately 16.38 acres in size were identified during a 2014 wetland delineation conducted at CIANGS (NGB 2014).

Fence surrounding Wetland A

Wetland A is an approximately 14.47-acre area within the wetland parcel that was acquired from the Point Mugu Game Preserve. It located on the southern end of the installation (**Figure 7**). The parcel is surrounded by airfields and agricultural fields as well as the Oxnard Drainage Ditch #2. It is characterized by symmetrical depressions, which seem to be indicative of construction by the previous property owner. The parcel is above the maximum high-tide line with no apparent channel connections to the drainage ditch, though it is regularly inundated during winter storm events. It contains a contiguous palustrine wetland system with emergent and forested wetlands (NGB 2014). Dominant vegetation in the forested areas of Wetland A is composed of hydrophytic vegetation: mulefat

and arroyo willow (*Salix lasiolepis*). Wetland A has been confirmed by BASH personnel as habitat for the federally endangered least Bell's vireo (*Vireo bellii pusillus*).

Wetland B is a palustrine emergent depressional wetland located on the eastern portion of the site east of the airplane ramp and occupies approximately 83,027 square feet (1.91 acres). Dominant vegetation in Wetland B is composed of Parish's glasswort (*Anthrocnemum subterminale*) and salt grass (*Distichis spicata*). Wetland B has limited ecological function due to low species richness, a large amount of invasive species, and location. It is presumably fed by flashy flows associated with runoff from developed areas (i.e., the adjacent tarmac).

Wetland B

6.0 MISSION IMPACTS ON NATURAL RESOURCES

6.1 Natural Resources Needed to Support the Military Mission

The CIANGS requires operational areas to support flying operations and the surrounding areas to provide a buffer to reduce BASH risk and provide support facilities and functions. Degradation of natural resources can result in unintended impacts to the military mission and impaired readiness. The 146 AW needs the land and its natural resources to function together in a healthy ecosystem to support the military mission. Management activities in this INRMP are designed to support the desired habitats and ecosystem functions to meet this objective.

6.2 Natural Resources Constraints to Mission and Mission Planning

The most significant constraints on CIANGS are related to water resources (i.e., wetlands and Waters of the US) water conservation and reducing BASH risk. There are no major topographic or vegetative features that limit the military mission on CIANGS. There are currently no constraints from T&E species. Any new activities or infrastructure could be limited in areas where federal or state-listed species are found to be present.

One of the primary sustainability challenges on CIANGS as currently used and projected in the near future is the ability to maintain access to water, both for potable and non-potable uses. High maintenance and water use of existing landscape is not sustainable and could limit water use and/or funds for mission-essential activities in the future.

In 2001, a leaking fuel pipe or dispenser, located at the military vehicle gas station that was located adjacent to Building 125 (since removed), was found to have released approximately 1,800 gallons of unleaded fuel, over an indeterminate amount of time, resulting in ground and water contamination. In 2002, over 600 tons of contaminated soil were removed and seven monitoring wells were installed over the next year. In 2014, samples indicated that the plume of contamination was migrating to the west and north; in response to this an additional 3,000 tons of contaminated soil were removed and an additional eight monitoring wells installed, along with an

ozone injection system. Another cleanup effort was initiated in 2014 and is ongoing, to include quarterly groundwater monitoring and ozone injection wells. In 2017, additional ozone injection wells were installed and the long defunct remains of the fuel storage tanks were removed. As of 2018, sampling results show that the contamination is diminishing, but a complete cleanup end-date is unknown at this time.

Land Use

The installation's functional land use generally falls into the following categories: the operations, maintenance and administrative areas, the taxiway, and the wetland parcel. The primary land use at CIANGS is aircraft operations, which includes the aircraft parking apron, main hangar, and fuel/corrosion control hangar as well as various other support facilities. Maintenance facilities located throughout the developed portion of the installation serve aircraft, propulsion, support equipment, and support vehicles. Support facilities are located along Mulcahey Drive and include civil engineering, base supply, composite support, mobility storage, the petroleum, oils, and lubricants (POLs) complex, and a guard kiosk. The 146 AW Headquarters is the primary administrative facility, located north of the aircraft parking apron near the main gate. The 146 AW is a co-user of the NBVC Point Mugu primary runway (03/21) and Air Traffic Control tower. Aircraft from the 146 AW access the runway from a supporting taxiway that links the base with the Navy's airfield complex. The taxiway extends from the operation area to the NBVC Point Mugu runway. There are open grasslands on either side of the paved surface which serve both to minimize BASH risk and to ensure stormwater movement toward the containment tanks. No development is planned for the 16.76-acre, fenced, undeveloped wetland parcel in the southern end of CIANGS.

Current Major Impact

There are 3 primary areas of potential impacts to natural resources from the military mission at CIANGS:

- Wetland and Waters of the US management.
- Impacts to migratory birds.
- Landscaping conversion.

Potential Future Impacts

There are no known projected changes in mission or potential impacts.

7.0 NATURAL RESOURCES PROGRAM MANAGEMENT

7.1 Natural Resources Program Management

The guiding philosophy of this INRMP is to take an ecosystems approach to managing natural resources present on CIANGS. Ecosystem management is based on clearly stated goals and objectives, and associated activities and projects. The CIANGS INRMP identifies goals and objectives, and presents the means to accomplish them, as well as the methodologies to monitor results.

7.2 Fish and Wildlife Management

Wildlife management involves manipulating various aspects of an ecosystem to benefit chosen wildlife species. Management of these habitats generally is focused to benefit native species, particularly listed species and game species. The 146 AW will manage the wildlife and its habitat at CIANGS by implementing the strategies listed below:

- Limit the amount of pesticides used for invasive species control and use mechanical methods when appropriate.
- Maintain grass heights between 0.7-1.1 feet in open fields to discourage assembly of small, flocking birds.
- Remove eucalyptus trees near the taxiway and the NBVC Point Mugu runway in order to reduce raptor habitat.
- Reduce woody vegetation along the edge of the taxiway.
- Provide for wildlife movement between areas where possible. Manage invasive species to minimize impacts to native wildlife.
- Avoid disturbing active bird nests during the breeding season, including mowing and tree trimming.

Wildlife management at CIANGS will focus on maintaining and restoring natural habitat favorable for indigenous fish and wildlife in a manner consistent with the military mission and all applicable laws and regulations. CIANGS supports numerous native species including at least one federally protected wildlife species, the least Bell's vireo. In addition to general wildlife management, there are management needs associated with minimizing BASH-related risk at CIANGS to support flight operations essential to the military mission. The vast majority of aircraft strikes do not occur on CIANGS, but on the airfields used by the aircraft or while in flight. Although few direct impacts occur on CIANGS, coyotes and ground squirrels are sometimes removed and bird exclusions have been added to hangars to reduce BASH risk. There appear to be no significant impacts from mission activities affecting wildlife populations on the CIANGS.

7.2.1 Federal Wildlife Policies and Regulations

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) prohibits the pursuit, hunting, take, capture, killing or attempting to take, capture, kill, or possess any migratory bird included in the MBTA, including any part, nest, or egg of any such bird without a permit issued by the Secretary of the Interior (16 USC § 703). The DoD has a Memorandum of Understanding (MOU) with the USFWS pursuant to EO 13186 *Responsibilities of Federal Agencies to Protect Migratory Birds*, which outlines a collaborative approach to promote the conservation of migratory bird populations. This MOU specifically pertains to natural resource management activities, including, but not limited to, habitat management, erosion control, forestry activities, invasive weed management, and prescribed burning. It also pertains to installation support functions, operation of industrial activities, construction and demolition activities, and hazardous waste cleanup. In February 2007, the USFWS finalized regulations for issuing incidental take permits to the DoD. If any of the Armed Forces determine that a proposed or an ongoing military readiness activity may result in a significant adverse effect on a population of migratory bird species, then they must confer and cooperate with the USFWS to develop appropriate and reasonable conservation measures to minimize or mitigate identified significant adverse effects (50 CFR Part 21).

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 USC 668-668c), enacted in 1940, and amended several times since then, prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald eagles, including their parts, nests, or eggs. The Act provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle ... [or any golden eagle], alive or dead, or any part, nest, or egg thereof."

In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death or nest abandonment.

Partners in Flight

The DoD Partners in Flight (PIF) program consists of natural resources personnel from military installations across the United States working collaboratively with partners throughout the Americas to conserve migratory and resident birds and their habitats on DoD lands. PIF sustains and enhances the military mission through proactive, habitat-based conservation and management strategies that maintain healthy landscapes and training lands. Additionally, PIF works beyond installation boundaries to facilitate cooperative partnerships, determine the current status of bird populations, and prevent the listing of additional birds as threatened or endangered. DoD PIF provides a scientific basis for maximizing the effectiveness of resource management, enhancing the biological integrity of DoD lands, and ensuring continued use of these lands to fulfill military training requirements.

Pollinator Conservation

DoD has emphasized the importance of pollinator conservation to the military services by developing partnerships to support their conservation. DoD has MOUs with Bat Conservation International (BCI) and has developed the USAF Pollinator Conservation Reference Guide (March 2018). The MOU with BCI "establishes a policy of cooperation and coordination between DoD and BCI to identify, document and maintain bat populations and their habitats on DoD installations" (signed Oct 2006, renewed Dec. 2011). The MOU states that this framework is important to "ensure that pollinator management activities are incorporated where practicable, into INRMPs and practices." Conservation of pollinators by USAF alone or in collaboration with groups such as BCI and P2 supports these DoD initiatives.

Some areas of ANG installations are more suitable for pollinator habitat conservation due to current use and/or habitat condition. For example, conservation on unimproved (natural) areas, buffers, recreation areas, rights-of-way, golf courses, and landscaped areas may be more compatible with mission requirements than other areas. These areas should be a priority for implementing pollinator habitat improvements and using land management practices in ways beneficial to pollinators.

The USAF Pollinator Conservation Reference Guide provides specific pollinator conservation measures which can be implemented by the USAF. The USAF Pollinator Conservation Reference Guide is available on the USFWS and AFCEC eDASH Natural Resources website. The USAF Pollinator Reference Guide, developed by the USFWS, establishes guidance as a National

Pollinator Conservation Strategy on lands owned by the USAF. It supplements existing policy and instructions to guide USAF actions to contribute to pollinator conservation under Presidential Memo and Federal Pollinator Health Strategy. Further provides Technical Guides as reference materials for pollinators of conservation concern (listed species, birds of conservation concern, bees and monarch butterflies), and native plant recommendations specific to ecoregions.

7.2.2 Nuisance Wildlife and Wildlife Diseases

Other than those that present a BASH risk, there are few nuisance wildlife species at CIANGS. Future nuisance wildlife problems will be evaluated in conjunction with USDA-WS personnel, if appropriate. Any solutions to nuisance wildlife problems will follow the IPM and BASH Plans.

Diseases affecting fish and wildlife may occur on the installation. Any large-scale fish and wildlife deaths and unnatural behavior occurring on the installation will be reported, recorded and investigated, in conjunction with USFWS, EPA, California Environmental Protection Agency (CalEPA), and CDFW personnel, as appropriate.

7.2.3 Management of Threatened and Endangered Species and Habitats

This section presents information about the management of priority species that are located within or with the potential to occur at CIANGS, along with requirements and strategies for their management. As additional surveys and natural resources management are conducted, it is possible other species may be added in the future. Currently, there are eight priority species. Management recommendations for these species are derived from the NBVC Point Mugu INRMP and various USFWS and CDFW documents.

7.2.3.1 Federally Special Status Wildlife Species

The 146 AW is required to manage federally protected species. Failure to protect federally listed species could lead to an ESA violation, which could negatively impact training land availability. Four federally-listed priority species have been identified for CIANGS and their management strategies are listed below:

California least tern: The California least tern establishes nesting colonies on sandy soils with sparse vegetation along the ocean, lagoons, and bays, and forages over coastal lagoons and estuaries. It is fully protected, meaning it may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock. CIANGS is approximately 2 miles from the coast and lacks the sandy soil and sparse vegetation for suitable least tern nesting colonies. This species has not been observed on CIANGS and is unlikely to occur due to lack of suitable nesting habitat, however there is potential foraging habitat for least terns along Oxnard Drainage Ditch #2 (NGB 2016). California least terns nest in two locations at Mugu Lagoon (NBVC Point Mugu 2013). The following management strategies for California least tern are recommended if the species is documented on site:

California least tern
Photo Courtesy of USFWS

- Limit disturbance within the wetland parcel.

- Identify habitat use within the wetland parcel and the connection with surrounding areas.

Least Bell's vireo
Photo Courtesy of USFWS

Least Bell's vireo: The Least Bell's vireo is federally and state endangered. Individuals were visually identified, by BASH personnel, flying from NBVC Point Mugu to the wetland parcel (Wetland A) located on the southern end of CIANGS. These observations were later confirmed through auditory surveys of the area (CANG 2013). No least Bell's vireos were observed in a focused 2014 survey (NGB 2016); however potentially suitable habitat for the least Bell's vireo occurs in the arroyo willow thickets, adjacent eucalyptus groves, and mulefat thickets in the wetland parcel (NGB 2016, **Figure 8**). As the willow habitat continues to mature onsite, the wetland parcel may become better potential habitat for the least Bell's vireo. The following management strategies for least Bell's vireo are recommended:

- Conduct surveys to determine presence in the wetland parcel every 5 years.
- Limit disturbance in the wetland parcel.
- Continue to monitor and identify habitat use within the wetland parcel and the connection with the surrounding areas.
- If nesting is documented, prohibit all disturbances of the nest site and within 500 feet of the nest site until birds have left.

Salt marsh bird's-beak: Salt marsh bird's-beak is a federally and state endangered hemiparasite, a parasitic plant that carries out photosynthesis but also derives some water and dissolved nutrients from host plants. This plant species is known to exist at both NBVC Point Mugu and Ventura County Game Preserve (NBVC Point Mugu 2013). While the species itself has not been documented on CIANGS, host plants Parish's glasswort, salt grass, alkali heath, and fleshy jaumea have been documented in the wetland parcel and indicate suitable habitat (NGB 2016, USFWS 2009c). This suitable, potential habitat is located in the wetland parcel at the south end of the installation (**Figure 8**). The following management strategies for salt marsh bird's-beak are recommended if the species is documented on site:

Salt marsh bird's-beak
Photo Courtesy of USFWS

- Limit disturbance in the wetland parcel.
- Identify extent and fluctuation in the population and determine if host species are present.
- Document population parameters over time to help identify habitat management required for the species.

Tidewater goby: The tidewater goby is a federally endangered small, elongate, grey-brown fish endemic to California. The tidewater goby is found primarily in waters of coastal lagoons, estuaries, and marshes. Tidewater gobies can recolonize habitats when favorable habitat conditions are restored and individuals repopulate this restored habitat, either through natural dispersal or through human-assisted reintroduction. They are naturally absent from areas where the coastline is steep and streams do not form lagoons or estuaries (USFWS 2014). Tidewater gobies have not been documented on CIANGS. Surveys are recommended to identify presence/absence of the species and suitable habitat.

Tidewater goby
Photo Courtesy of USFWS

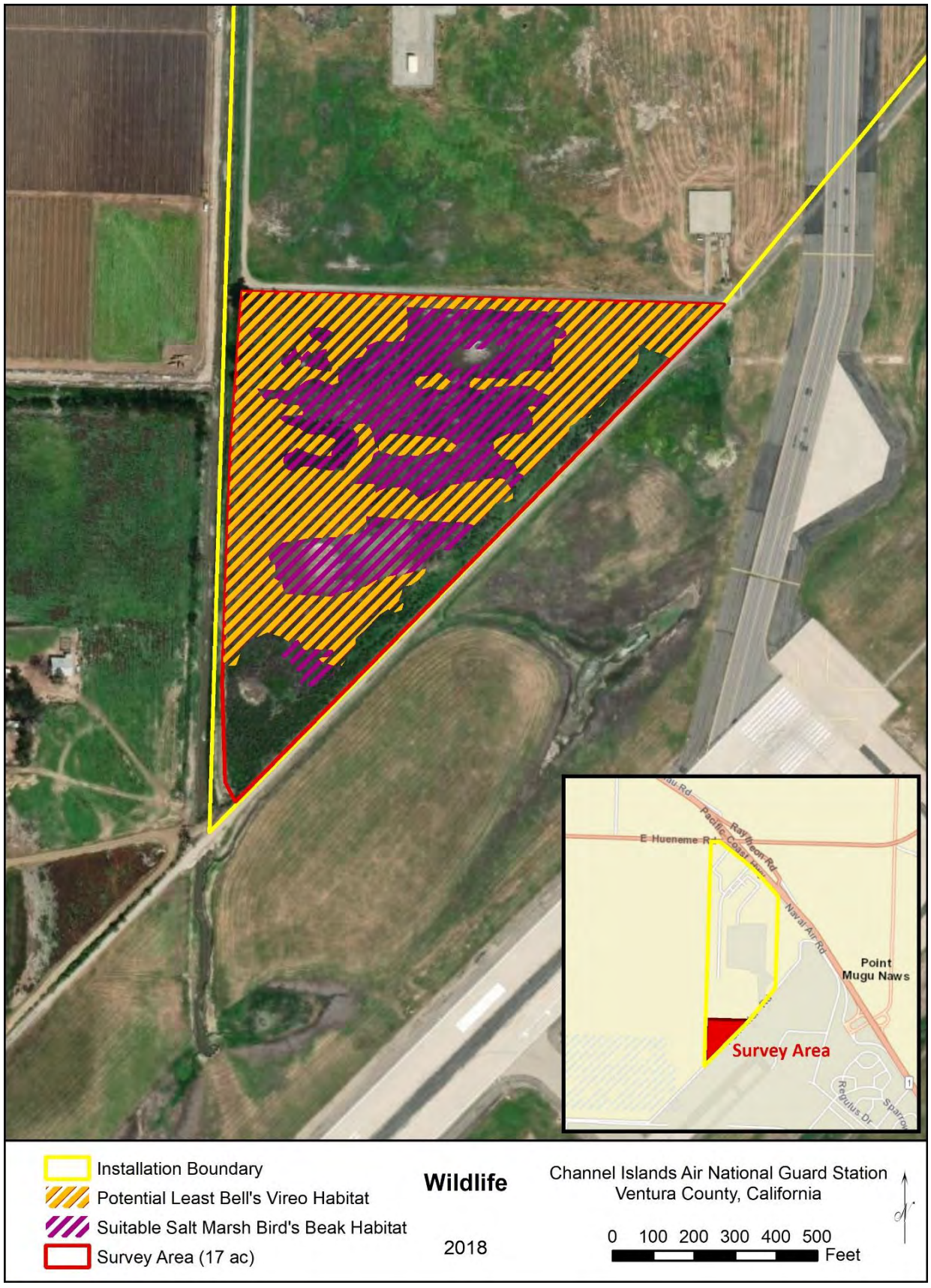

Figure 8. CIANGS Wildlife Map

7.2.3.2 State Special Status Species

The CESA provides for the protection of threatened and endangered species native to California. Priority state-listed species discussed below include one state listed bird and three state species of special concern. California species of special concern are listed in the California Natural Diversity Database (CNDDB). In addition, plant species of special concern are ranked by the California Native Plants Society (CNPS).

Belding's savannah sparrow: The state endangered Belding's savannah sparrow is a year-round obligate resident of the coastal salt marshes of southern California and is ecologically associated with dense pickleweed, within which most nests are found (Zembal & Hoffman 2001). Belding's savannah sparrow individuals are known to occur on NBVC Point Mugu but have not been document on CIANGS. The wetland parcel includes suitable habitat for Belding's savannah sparrow, including the presence of pickleweed (**Table 2**). The following management strategies for Belding's savannah sparrow are recommended if the species is documented on site:

Belding's savannah sparrow
Photo Courtesy of National Audubon Society

- Limit disturbance in the wetland parcel.
- Survey for species and identify habitat use within the wetland parcel and the connection with surrounding areas.
- If nesting is documented, prohibit all disturbance of the nest site until birds have left.
- Preserve and restore salt marsh wetland habitat.
- Participate in 5 year surveys conducted by CDFW, when feasible.

Southwestern pond turtle: Southwestern pond turtles are aquatic turtles that use upland habitat seasonally and require still or slow-moving water as well as the availability of aerial and aquatic basking sites (Lovich 1998). They are state special species of concern. Southwestern pond turtles have been observed on CIANGS. They likely occur primarily along the border with ODD #2. The following management strategies for southwester pond turtle are recommended:

Southwestern Pond Turtle
Photo Courtesy of California Herps, Gary Nafis

- Limit disturbance along boundary with ODD #2

Wandering skipper: Wandering skipper habitat is a state species of special concern and is limited primarily to coastal salt marsh as it depends on seashore saltgrass (*Distichlis spicata*), which serves as the larval host plant until metamorphosis. Habitat for the species exists within the wetland parcel on CIANGS, indicating a potential for the species to exist on the installation. The following management strategies for wandering skipper are recommended:

Wandering skipper
Photo Courtesy of UCI, Peter J.

- Preserve and restore salt marsh wetland habitat as feasible.
- Preserve and restore nectar sources and host plants as feasible.

Yellow-breasted chat: The yellow-breasted chat is a state species of special concern and has been documented throughout the wetland parcel, including throughout the eucalyptus grove and arroyo willow thickets. Vegetation in the wetland provides suitable habitat and survey results suggest that the yellow-breasted chat is likely breeding onsite (NGB 2016). The following management strategies for the yellow-breasted chat are recommended:

- Limit disturbance in the wetland parcel.
- Survey for species and identify habitat use within the wetland parcel when feasible.
- If nesting is documented, prohibit all disturbance of the nest site until birds have left when feasible.

Yellow-breasted chat
Photo courtesy of Macaulay Library, Kent Jensen

7.2.3.3 Management Strategies for Special Status Species

All of the priority species identified above are most likely to occur in the wetland parcel or have been observed in the wetland parcel (Wetland A). Management of the wetland parcel will be the most important factor in management for these priority species. The following general guidelines will be followed to facilitate the military mission and natural resources management objectives while minimizing negative impacts on rare species and their habitats.

- Continue supporting BASH program to minimize impacts to listed species and conduct Section 7 consultations for federally listed species as needed.
- Manage listed species by avoiding disturbance in the wetland parcel.
- Update biological inventories regularly, as funding permits, as the occurrence of listed species is subject to change over time as a result of either recruitment, responses to management activities, identification of additional protected species, or the change in status of species currently present at the CIANGS.
- Avoid disturbance of active bird nests during the breeding season (generally April – July for most species).

7.3 Water and Wetland Resource Protection

In general, water resources will be managed through conservation and impact avoidance. The following guidelines will be implemented to ensure compliance and to protect and enhance water and wetland resources at the CIANGS.

- Consult with the EM and the ANG NR Program Manager prior to initiating projects with the potential to disturb water resources.
- Do not allow vehicles within known jurisdictional wetlands.
- Restrict vehicles from within 30 feet of water resources except where established crossings and roads exist.
- Avoid disturbance of wetlands and aquatic habitats where practicable. Protect the riparian zone through good land management.
- Manage invasive species to promote desirable native species.
- Plan development to avoid wetland and floodplain impacts to the maximum extent possible and mitigate unavoidable impacts on wetland and floodplain functions.
- Review operations and maintenance programs that potentially affect water resources and develop procedures and guidelines to avoid the loss of function.

- Develop ways to conserve water on the installation and reduce irrigation use.
- All construction and grading projects should be carried out to minimize indirect impacts to wetlands from runoff, sedimentation, and chemical degradation. Design, use, and promote construction practices that minimize adverse effects on natural habitat.
- Maintain proper revegetation and erosion control plans and methods.
- Restoration plans should be developed to enhance wetland habitats without increasing BASH risk.

7.3.1 Regulatory and Permitting

The USACE regulates the discharge of dredged or fill material into Waters of the US, including wetlands, under Section 404 of the Clean Water Act (CWA). Even an inadvertent encroachment into Waters of the US resulting in a displacement or movement of soil or fill material has the potential to require Section 404 and Section 401 permits. Waters of the US are defined under 33 CFR Part 328.3(a) and may include coastal and inland waters, lakes, rivers, ponds, streams, intermittent streams, vernal pools, wetlands, and other waters, that if degraded or destroyed could affect interstate commerce. Jurisdictional determinations are made by the USACE.

Management of wetlands on federal lands and military installations is further governed by EO 11990 and DoDI 4715.03, respectively. Under those instructions, wetlands are required to be managed for no net loss on federal lands, including military installations. In support of these policies, long- and short-term adverse impacts associated with the destruction or modification of wetlands and support of new construction in wetlands must be avoided to the maximum extent possible.

According to the US Environmental Protection Agency (US EPA) regulations issued under Section 404(b)(1) of the CWA, permitting of fill activities will not be approved unless the following conditions are met: no practicable, less environmentally damaging alternative to the action exists; the activity does not cause or contribute to violations of state water quality standards (or compliance under Section 401 of the CWA); the activity does not jeopardize listed species or sensitive cultural resources (33 CFR Part 320.3 [e] and [g]); the activity does not contribute to significant degradation of Waters of the US; and all practicable and appropriate steps have been taken to minimize potential adverse impacts to the aquatic ecosystem (40 CFR Part 230.10).

Section 401 of the CWA gives the State of California the authority to regulate federally-permitted activities that may result in a discharge to water bodies, including wetlands. The state may issue certification, with or without conditions, or deny certification for activities that may result in a discharge to water bodies. The Regional Water Quality Control Boards (RWQCB) in California are responsible for issuing Section 401 Water Quality Certification in California. The RWQCB, through the Porter Cologne Water Quality Control Act of 1969, asserts jurisdiction over waters of the State of California, which is generally the same as Waters of the US, but also includes isolated water bodies, including wetlands.

The CDFW regulates water resources under Section 1600-1616 of the California Fish and Game Code. Section 1602 states: An entity may not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or

ground pavement where it may pass into any river, stream, or lake. CDFW jurisdiction includes ephemeral, intermittent and perennial watercourses and extends to the top of the bank of a stream or lake if unvegetated, or to the outer limit of the adjacent riparian vegetation, located contiguous to the watercourse, if the stream or lake is vegetated.

Management of wetlands on federal lands and military installations is mandated by EO 11990 and DoDI 4715.03, respectively. Under those instructions, wetlands are required to be managed for no net loss on federal lands, including military installations. In support of these policies, long- and short-term adverse impacts associated with the destruction or modification of wetlands and support of new construction in wetlands should be avoided to the maximum extent possible.

While CIANGS is not within a Federal Emergency Management Agency (FEMA) designated floodplain, floodplains are protected under EO 11988 Floodplain Management. The purpose of EO 11988 is for federal agencies to provide leadership and take action to reduce the risk of flood loss, minimize the impacts of flooding, and restore and preserve the natural and beneficial values of floodplains when acquiring, managing or disposing of federal lands. If impacts to FEMA floodplains are unavoidable, then the CIANGS must obtain a permit from the CDFW prior to initiating work within a floodplain.

Permitting

Permitting requirements vary depending on type, location, and extent of disturbance. Prior to initiating projects or activities (e.g. dredging, filling, work in and around a stream) occurring within or with the potential to affect a floodplain and Waters of the US including wetlands or other water body. Agencies involved in this type of permitting may include the USACE, CalEPA, RWQCB and the City of Oxnard.

As discussed above, the USACE and RWQCB have regulatory authority over jurisdictional Waters of the United States and isolated waters, while CDFW regulates lakes, rivers, and streams in the state of California. The USACE issues Nationwide Permits (NWPs) and Regional General Permits (RGPs) that cover many routine or minor projects. The USACE issues Individual Permits for larger projects, or those that do not meet the requirements of a NWP or RGP. The RWQCB issues individual 401 Water Quality Certifications to cover most project activities. Fourteen of the current NWPs are pre-certified requiring no, or minimal, notification requirements to the RWQCB. The CDFW issues Streambed Alteration Agreements pursuant to Section 1602 for activities occurring within lakes or streambeds.

To address concerns regarding use of pesticides in, over or near Waters of the US the EPA set forth a National Pollutant Discharge Elimination System (NPDES) Pesticide General Permit. There are four NPDES Pesticide General Permits that pertain to pesticide applications on waters of the state of California and land areas adjacent to waters of the state consistent with the EPA pesticide general permit requirements published under 40 CFR 122. These NPDES general permits are applicable to all persons who discharge pesticides to waters of the state from the application of biological pesticides or chemical pesticides, which leave a residue of the pesticide or its degradates. The four categories of pesticide discharges are: (1) aquatic animal invasive species control, (2) spray applications, (3) vector control, and (4) aquatic weed control. Each permit has different requirements and more information is available at http://www.waterboards.ca.gov/water_issues/programs/npdes/aquatic.shtml.

7.3.2 Vegetation Buffers

Vegetated buffers are also referred to as riparian management zones, riparian buffers, wetland buffers, lake buffers, buffer strips, filter strips or streamside management areas. Buffers can take many forms and may in size and function vary depending on the upland land use and the type of water resource being protected and can either be grassland or forest and may or may not be mowed and maintained occasionally. One of the primary purposes of a vegetated buffer is for water quality protection by providing vegetation to interrupt water flow and to trap and filter out suspended sediments, nutrients, chemicals, and other polluting agents before they reach the body of water. Vegetated buffers should be maintained along all perennial and intermittent streams, wetlands, lakes or ponds where nearby management activities result in surface/soil disturbance, earth changes and where erosion and sediment transport occur during rain events. Maintaining the forest cover around small water resources is important for preventing sedimentation and impacts to water quality. The most cost-effective way to minimize sediment loss is to maintain vegetative cover.

7.4 Grounds Maintenance

There are currently 39 acres with maintained landscaping, primarily consisting of non-native plants with high water consumption. A significant aspect of the long-term management of CIANGS is to undertake the conversion of the landscaping to low water use with a greater proportion of native plants. The following recommended landscaping practices should benefit the environment and generate long-term cost and maintenance time savings. The use of native plants protects biodiversity and provides wildlife habitat, as well as potentially reducing demands for fertilizer, pesticides, and irrigation and their associated costs. General recommendations to promote environmentally beneficial landscaping include:

- Design landscaping to be suitable to the specific site and appropriate for the use and operation of the facility.
- Minimize use of water by planting drought-tolerant and low water use native plants for landscaping.
- Implement water-efficient practices, use efficient irrigation systems and recycled water, and use landscaping to conserve energy.
- Limit turf areas where practical to reduce water use and maintenance requirements.
- Use wood mulch instead of rock mulch when practical.
- Prevent expansion of nonnative plants into native plant areas by using regionally native plants for landscaping where practicable.
- Use native plant species in habitat restoration projects. Reuse landscape trimmings on site as appropriate.
- Use porous pavement when possible to support water infiltration.
- Do not use seed-bearing plants or shrubs that provide small bird habitat in the southern portion of CIANGS, in order to reduce BASH risk.

All plants on the California Invasive Plant Council (Cal-IPC) Invasive Plant Inventory (http://www.cal-ipc.org) and all non-native grasses (except those used for turf/lawns) are not acceptable for landscape planting.

7.5 Soil Conservation and Sediment Management

Two main types of soil erosion exist: wind erosion and water erosion. Neither wind nor water erosion are a significant issue currently at CIANGS due to the lack of slopes and lack of area that is not developed. Several factors affect water erosion including rainfall, slope steepness and length, soil texture or erodibility, cover protecting the soil, and special practices such as terracing or planting on the contour. Any change in vegetation cover or land management that increases the risk of water erosion could impact surface water quality and aquatic organisms (if any) on base.

The most cost-effective way to minimize sediment loss is to maintain vegetative cover. Success in revegetating disturbed sites depends on the chemical and physical properties of the soil. Application procedures ideally include soil analysis to determine proper nutrient application levels and consider other factors such as soil moisture and weather patterns. The Calleguas Creek Watershed Wetland Restoration Plan (David Magney Environmental Consulting 2000) provides detailed guidelines regarding native planting for various habitat types within the Oxnard Plain as well as across the Calleguas Creek Watershed.

7.6 Outdoor Recreation, Public Access, and Public Outreach

There is a 2.5-mile paved perimeter road on the base that is utilized by utility trucks, runners, and walkers. It's located on the perimeter of the base along the fence and runs adjacent to the eastern facing fence of the wetlands. There is also an approximately 0.25 mile running track on base behind Building 100. It is used for running and walking only. Both the perimeter road and track are for base use only.

Paved perimeter road adjacent to Wetland A

Due to security and/or safety measures, public access is limited at CIANGS. There is currently no unsupervised public access or individual public access programs for outdoor recreation or otherwise at CIANGS.

7.7 Geographic Information System (GIS)

GIS is used to manage and catalog information acquired in natural resources research. GIS assists in planning by charting areas of environmental concern and providing a baseline for analyzing the potential impacts of any proposed natural resources management action. Managers can implement the capabilities of a GIS to watershed, wetlands, wildlife, and various other natural resource management applications. GIS needs and requirements will be addressed through the ANG GeoBase Program.

7.8 Other Plans

7.8.1 Integrated Pest Management Plan

CIANGS has an Integrated Pest Management (IPM) program. The IPMC is responsible for administering the IPM Plan and for recording monthly pesticide usage. It is the policy of the 146 AW to minimize the use of all pesticides at the installation. The current IPM Plan will be updated

by 31 January 2019 to the new ANG IPM Plan template. The current and future plans identify the techniques available to address pest, invasive and nuisance species to minimize adverse environmental affects while obtaining control of target pests. Typically, a combination of the following IPM techniques is required to resolve a problem on a sustained basis:

- Mechanical control traps to remove pests from where they are not wanted or exclude pests from where they are not wanted.
- Cultural control manipulates environmental conditions to suppress or eliminate pests.
- Biological control, uses predators, parasites, or disease organisms to control pests.
- Chemical control relies on pesticides to kill pests and/or undesirable species of plants.

7.8.2 Invasive Species

A base-wide formal non-native plant survey has not been conducted at CIANGS. Nineteen invasive, non-native plant species, as defined by the Cal-IPC, were observed in the wetland parcel during a field survey for federally listed species (NGB 2016). NBVC Point Mugu, adjacent to the installation, lists five priority invasive species: arundo, myoporum (*Myoporum laetum*), iceplant (*Carpobrotus* spp.), and European beachgrass (*Ammophila arenaria*), and perennial pepperweed (*Lepidium latifolium*) (NBVC Point Mugu 2013). Given the proximity of NBVC Point Mugu, it is likely that one or more of these species have dispersed to CIANGS. A more detailed list of non-native species occurring in Ventura County can be found at http://ceventura.ucdavis.edu/Com_Ag/invasive/. In addition, information for invasive species throughout the state can be found at https://www.cal-ipc.org/plants/inventory/. A list of potential non-native plant species for CIANGS based on top priority species from Cal-IPC is presented in **Table 6**.

Table 6. CIANGS Priority Invasive Plant Species

Scientific name	Common name	Cal-IPC Rating
Ailanthus altissima	tree of heaven	Moderate
Arundo donax	arundo	High
*Atriplex semibaccata**	Australian saltbush	Moderate
*Bromus diandru**	ripgut brome	Moderate
Carduus pycnocephalus	Italian thistle	Moderate
*Carpobrotus edulis**	ice plant	High
Centaurea solstitialis	yellow star thistle	High
*Cirsium vulgare**	bull thistle	Moderate
*Conium maculatum**	poison hemlock	Moderate
Cortaderia jubata	pampas grass (1)	High
Cortaderia selloana	pampas grass (2)	High
Cynara cardunculus	artichoke thistle	Moderate
*Cynodon dactylon**	Bermuda grass	Moderate
Delairea odorata	cape ivy (1)	High
Erodium cicutarium	western stork's bill	Limited
*Eucalyptus globulus**	eucalyptus, blue gum	Moderate
*Foeniculum vulgare**	sweet fennel	High
*Hirschfeldia incana**	black mustard, summer mustard	Moderate
*Lepidium latifolium**	perennial pepperweed	High
*Marrubium vulgare**	horehound	Limited
Mesembryanthemum	crystalline ice plant	Moderate
Myoporoum laetum	myoporum	Moderate
*Nicotiana glauca**	tree tobacco	Moderate
*Picris echioides**	bristly oxtongue	Limited
*Raphanus sativus**	wild radish	Limited
*Ricinus communis**	castor bean	Limited
*Rumex crispus**	curly dock	Limited
*Salsola tragus**	Russian thistle	Limited
Schinus molle	pepper tree	Limited
Senecio mikanioides	cape ivy (2)	-
Silybum marianum	milk thistle	Limited
Spartium junceum	Spanish broom	Limited
Tamarix ramosissima	tamarisk	High
Vinca major	vinca	Moderate
Washingtonia robusta	fan palms	Moderate

Source: Cal-IPC 2006, NAVFAC SW 2008b

CAL-IPC RANKING

High = Plants have moderate to high rates of dispersal and have severe ecological impacts in terms of physical processes, plant and animal communities, and vegetation structure

Moderate = Plants have substantial, but not severe, ecological impacts, and their establishment is generally dependent upon ecological disturbance

Limited = Plants have a minor ecological impact and their limited in terms of their dispersal and establishment

* indicates species previously documented on CI ANGS.

Management Strategies

Invasive, non-native species and noxious weeds have the capability to significantly impact native vegetation. A key element of INRMP implementation is to ensure no net loss of military training capability. Management of undesirable species is necessary to maintain military lands and facilities in usable condition. In addition, uncontrolled animal pests can become health hazards, which could threaten the military mission.

The invasive species of greatest concern documented on CIANGS is perennial pepperweed. It is recommended that a program be implemented to manage perennial pepperweed that would include monitoring and preventive treatment of small satellite populations to prevent further infestation (NGB 2016). Removal of existing established populations would be a multi-year effort that would include hand control, tarping, mowing, and herbicide application, with follow-up planting of native species. Other invasive plants onsite should also be controlled to the extent feasible. Many of the other invasive plants onsite do not occur in high concentrations, thus it would be beneficial to control these species before they become a nuisance. The other species with a "high" rating of concern (fennel and iceplant) should be the next priority for management to minimize the risk of spread and reduction of the habitat quality.

The 146 AW will work to prevent the introduction of invasive and exotic species and noxious weeds and will take measures to control them in an economically and environmentally sound manner. General management strategies are:

- Implement BMPs to minimize land disturbances that favor invasion and re-vegetate disturbed areas with native species.
- Use native rock and soil material instead of non-indigenous rock or soil when practical for maintenance or construction projects;
- Utilize mulches from CIANGS or certified-weed free sources to facilitate the establishment of native ground cover on impoverished soils.
- Maintain biodiversity and undisturbed habitat to maximize resilience to and competition with invasive species.
- Control invasive and exotic species and noxious weeds through early detection, isolation of infested areas, and control of individual plants with physical, chemical or mechanical means, depending on the species.
- Favor basal application and spot treatment and avoid aerial or broadcast application of pesticides to prevent adverse impacts to native plants and wildlife.
- Avoid pesticide use in and around wetlands and other surface waters.
- Do not use invasive, non-native species in landscaping.
- Continue to reseed exposed soils using a certified weed-free native grass mix.

7.8.3 Stormwater Management

Stormwater management is a significant concern at CIANGS. There are numerous sources for stormwater BMPs in California. The most widely used are the California Stormwater Quality Association maintains manuals at http://www.cabmphandbooks.com/. However, the California Department of Transportation (CalTrans) also maintains multiple manuals at http://www.dot.ca.gov/hq/construc/stormwater/manuals.htm.

The 146 AW maintains an industrial SWPPP in compliance with California requirements (CAANG 2018a). The SWPPP describes the program, BMPs, monitoring and other measures already used on CIANGS. In addition to compliance with requirements associated with industrial activities, construction or other land-disturbing activity that creates a minimum of 1-acre of soil disturbance must be permitted by the RWQCB under the NPDES permit program. The NPDES permit establishes the required erosion control and revegetation standards.

7.8.4 Bird/Wildlife Aircraft Strike Hazard (BASH)

In June 2018, a Joint BASH Plan, between Naval Base Ventura County Point Mugu and CIANGS, was signed by the NBVC Point Mugu Commanding Officer and endorsed by the 146 AW Commanding Officer. This joint BASH program is intended to provide an active program to minimize birds and other wildlife strikes to aircraft. In addition, NBVC Point Mugu and CIANGS also share the USDA-WS personnel for assistance with BASH issues. The current goal of the BASH Management Plan focuses on the military mission and presents a BASH Program designed to mitigate birds and other wildlife that might present a strike hazard. The Bird/Wildlife Hazard Working Group (BHWG) is co-chaired by the Navy and the Air National Guard. At CIANGS, BASH projects and activities are led by the Safety Office, implemented by USDA-WS, and are in coordination with the Environmental Office. A Biological Assessment (BA) and an EA were completed in support of the 2007 update of the BASH Management Plan (NAVFAC SW 2006, 2009). A Biological Opinion (BO) from the USFWS regarding implementing the BASH Program in NBVC Point Mugu was issued in 2006.

The majority of the approximately 200 bird species that inhabit or migrate through the CIANGS and NBVC Point Mugu complex mostly congregate at Mugu Lagoon, not at CIANGS. However, the 146 AW coordinates with USDA-WS personnel for the purpose of reducing the potential BASH risk on CIANGS. There are few harassment activities on CIANGS as it is not a critical flight area. There is currently one Depredation Permit issued to CIANGS (June 2018) by the USFWS.

8.0 MANAGEMENT GOALS AND OBJECTIVES

Goals and objectives provide the framework for natural resources management programs. Goals provide a general guiding direction for each technical area and objectives are more specific actions that facilitate achieving those goals. The objectives then drive the development of activities and projects to achieve those objectives. Management goals and objectives for the CIANGS INRMP were developed through a thorough evaluation of the natural resources present on CIANGS in accordance with AFI 32-7064 and the principles of adaptive ecosystem management by an interdisciplinary team of biologists, planners, and environmental scientists. Goals, objectives should be revised over time to reflect evolving environmental conditions, adaptive management, and the completion of tasks as the INRMP is implemented.

GOAL – Natural Resources Program Management (PM): Manage natural resources in a manner that is compatible with and supports the military mission while complying with applicable federal and state laws, and USAF regulations and policies.

- OBJECTIVE PM1: Coordinate an annual review of the CIANGS INRMP with internal stakeholders, the USFWS, and CDFW and monitor the progress of goals and objectives. Update and document the INRMP accordingly.
- OBJECTIVE PM2: Use adaptive, ecosystem management as the primary natural resources management paradigm. Ensure the INRMP is integrated with other plans such as the IPM Plan and BASH Plan.
- OBJECTIVE PM3: Continue to cooperate with other agencies and local landowners on regional land and natural resource management.

OBJECTIVE PM4: Ensure the annual budget is prepared and implemented for the fiscal year's activities.

GOAL – Fish and Wildlife Monitoring (FW): Establish a monitoring program for wildlife where trends, habitats, and ecological data can be tracked and analyzed.

OBJECTIVE FW1: Perform a fauna reconnaissance level survey to ensure all data previously obtained through earlier studies are current.

OBJECTIVE FW2: Maintain a wildlife inventory/database to ensure data obtained is current and uploaded into the ANG GeoBase system.

GOAL – Vegetative Monitoring (VE): Establish a monitoring program for vegetation including the presence and density of invasive species where trends, habitats, and ecological data can be tracked and analyzed.

OBJECTIVE VE1: Perform a flora reconnaissance level survey to ensure all data previously obtained through earlier studies are current.

OBJECTIVE VE2: Maintain a vegetative inventory/database and ensure data obtained is current and uploaded into the ANG GeoBase system.

OBJECTIVE VE3: Increase usage of native plants in revegetation and landscape plans on the CIANGS.

GOAL – Invasive Species (IN): As part of the flora and fauna surveys, invasive and nonnative species will be identified for the purposes of determining populations and locations of those populations.

OBJECTIVE IN1: Add invasive species data obtained through the flora/fauna surveys to the IPM Plan and to this INRMP. Identify priority requirements based on location and population size(s).

OBJECTIVE IN2: Manage invasive species by removing and replacing, when feasible, invasive species with native species. Monitor the density and spread of invasive species.

OBJECTIVE IN3: Work with the IPMC to include pest management actions in the IPM Plan.

GOAL – Threatened and Endangered Species (TE): Identify the presence of federally and state-threatened and endangered species to include any Species of Greatest Conservation Need (SGCN) with California's State Wildlife Action Plan.

OBJECTIVE TE1: Maintain population of least Bell's vireo, salt marsh bird's-beak, and other listed species where feasible.

OBJECTIVE TE2: Conduct flora and fauna species surveys every 3 years to ensure knowledge of species for potential presence of federally and state listed species.

OBJECTIVE TE3: Develop management strategies and refine priority species for any documented listed species.

GOAL – Grounds Maintenance and Landscaping (GM): Manage vegetative cover, forested areas, and soil to minimize sediment loss and erosion, while protecting water quality.

OBJECTIVE GM1: Use native seed mixtures and flora on new landscaping projects and disturbed areas.

a. Maintain uniform coverage and utilize low maintenance grasses in open areas and areas located near the airfield.

GOAL – Water Resource Protection (WA): Manage water resources so they remain resilient and with no net loss of acreage or functions and values.

OBJECTIVE WA1: Implement the SWPPP and manage stormwater runoff to reduce nutrients and contaminants.

OBJECTIVE WA2: Minimize nonpoint source pollution through implementation of erosion and sediment and stormwater BMPs.

OBJECTIVE WA3: Implement construction (erosion and sediment control) BMPs to reduce/prevent soil erosion damage from ground disturbing activities.

GOAL – Waters of the US/Wetland Management and Protection (WT): Conduct surveys and obtain jurisdictional determinations for Waters of the US/wetlands to ensure boundaries are identified and incorporated into land use management decisions for the installation.

OBJECTIVE WT1: Ensure the delineations of Waters of the US/wetlands and written Jurisdictional Determinations from the USACE are current.

a. After obtaining the written JD ensure the JD remains current.
b. Annually inspect Waters of the US/wetlands for disturbance activities and/or physical changes.

OBJECTIVE WT2: Develop a management plan, where feasible to minimize land use improvements that could negatively affect site waters and wetland areas.

OBJECTIVE WT3: Educate installation personnel on the location of waters and wetlands on the installation and the regulations that pertain to them (e.g. construction activities, human disturbances).

a. Monitor construction projects and other land disturbing activities.
b. If encroachments or disturbances are unavoidable, obtain the proper permits from the CalEPA and/or USACE.

OBJECTIVE WT4: Conduct survey of wetlands to establish current health of ecosystem; to include land and aquatic wildlife survey, plant survey, and water and soil samples.

9.0 ANNUAL WORK PLANS

The INRMP Annual Work Plans contain projects listed by fiscal year (FY). For each project, a specific timeframe for implementation is provided (as applicable), as well as the office of primary responsibility (OPR), funding source, and priority for implementation (**Tables 7-10**). Priorities are defined as follows:

- High: The INRMP signatories assert that if the project is not funded the INRMP is not being implemented and the Air Force is non-compliant with the Sikes Act; or that it is specifically tied to an INRMP goal and objective and is part of a "Benefit of the Species" determination necessary for ESA Sec 4(a)(3)(B)(i) critical habitat exemption.
- Medium: Project supports a specific INRMP goal and objective and is deemed by INRMP signatories to be important for preventing non-compliance with a specific requirement within a natural resources law or by EO 13112 on Invasive Species. However, the INRMP signatories would not contend that the INRMP is not be implemented if not accomplished within programmed year due to other priorities.

- Low: Project supports a specific INRMP goal and objective, enhances conservation resources or the integrity of the installation mission, and/or support long-term compliance with specific requirements within natural resources law; but is not directly tied to specific compliance within the proposed year of execution.

Table 7. Work Plans FY 2019					
Project	**OPR**	**Funding Source**	**Priority Level**	**Met/Not Met**	**Comments**
Prepare budget to implement the natural resources management program.			**High**		
Complete annual review of INRMP with USFWS and CDFW.			**High**		
Develop a working partnership with the NBVC Point Mugu to address common natural resource issues affecting the installations.			High		
Develop a training program to share environmental and natural resource information with CIANGS personnel.			High		
Incorporate new GIS data from surveys into the ANG GeoBase Program.			High		
Review activities for potential to impact to Waters of the US including wetlands.			High		
If an activity will impact a Waters of the US/wetlands work with the EM and the ANG NR Program Manager to identify permitting and mitigation requirements.			High		
Monitor construction projects to ensure erosion and sediment control measures are being implemented and maintained in accordance with approved erosion and sediment control plans.			High		
Continue implementing SWPPP to maintain water quality.			High		
Continue to participate in community planning regarding water resources for landscaping.			High		
Revegetate exposed soils with native species to reduce erosion.			High		
Ensure project designs include native plant species and materials in project designs.			High		
Implement projects to remove/replace incompatible landscaping (e.g. pine trees creating fire hazards near POL storage).			Medium		
Support the Safety Office in their implementation of the BASH Plan.			High		
Monitor federal and state changes to listed species.			High		
Review findings of Flora/Fauna surveys to determine what actions need to be taken to address issues identified in the surveys including findings on T&E species and invasive species.			High		
Support the IPMC in the implementation of the IPM Plan.			High		
Develop an Urban Tree Management Plan to include identification of tree species, condition of trees and existence of nests.			High		
Project design needs to consider the presence of active fauna nests in developing construction design plans.			High		
Summary:					

Table 8. Work Plans FY 2020					
Project	**OPR**	**Funding Source**	**Priority Level**	**Met/Not Met**	**Comments**
Prepare budget to implement the natural resources management program.			**High**		
Complete annual review of INRMP with USFWS and CDFW.			**High**		
Implement the aspects of the working relationship developed through the FY2019 Work Plan to address common natural resource issues affecting both CIANGS and NBVC Point Mugu.			High		
Implement training actions needed to share environmental and natural resource information with CIANGS personnel.			High		
Incorporate new GIS data from surveys into the ANG GeoBase Program as needed.			High		
Review activities for potential to impact water resources, including jurisdictional waters.			High		
If an activity will impact a Waters of the US/wetlands work with the EM and the ANG NR Program Manager to identify permitting and mitigation requirements.			High		
Monitor at-risk sites to ensure erosion and sediment control measures are effective.			High		
Continue implementing SWPPP to maintain water quality.			High		
Continue to participate in community planning regarding water resources.			High		
Revegetate exposed soils with native species to reduce erosion.			High		
Use native plant species and materials for landscaping activities.			High		
Implement projects to remove/replace incompatible landscaping (e.g. pine trees creating fire hazards near POL storage).			Medium		
Support the Safety Office in their implementation of the BASH Plan.			High		
Monitor federal and state changes to listed species.			High		
Identify what actions need to be taken to address the findings of the Flora and Fauna studies.			High		
Support the IPMCs implementation of the IPM Plan.			High		
Identify what actions from the Urban Tree Management Plan need to be implemented.			High		
Summary:					

Table 9. Work Plans FY 2021					
Project	**OPR**	**Funding Source**	**Priority Level**	**Met/Not Met**	**Comments**
Prepare budget to implement the natural resources management program.			**High**		
Complete annual review of INRMP with USFWS and CDFW.			**High**		
Continue working with NBVC Point Mugu, as well as sharing survey results regarding common natural resources management issues.			High		
Continue to provide environmental and natural resource training to CIANGS personnel.			High		
Incorporate new GIS data from surveys into the ANG GeoBase Program as needed.			Medium		
Review activities for potential to impact water resources, including jurisdictional waters.			High		
If an activity will impact a Waters of the US/wetlands work with the EM and the ANG NR Program Manager to identify permitting and mitigation requirements.			High		
Monitor at-risk sites to ensure erosion and sediment control measures are effective.			High		
Continue implementing SWPPP to maintain water quality.			High		
Continue to participate in community planning regarding water resources.			High		
Revegetate exposed soils with native species to reduce erosion.			High		
Use native plant species and materials for landscaping activities.			High		
Implement projects to remove/replace incompatible landscaping (e.g. pine trees creating fire hazards near POL storage).			Medium		
Support the Safety Office in their implementation of the BASH Plan.			High		
Monitor federal and state changes to listed species.			High		
Review activities for potential to impact listed species and identify options to minimize those impacts.			High		
Identify what actions need to be taken to address the findings of the Flora and Fauna studies.			High		
Support the IPMCs implementation of the IPM Plan.			High		
Implement agreed upon actions identified in the Urban Tree Management Plan.			High		
Summary:					

Table 10. Work Plans FY 2022					
Project	**OPR**	**Funding Source**	**Priority Level**	**Met/Not Met**	**Comments**
Prepare budget to implement the natural resources management program.			**High**		
Complete annual review of INRMP with USFWS and CDFW.			**High**		
Exchange annual review reports for INRMPs with NBVC Point Mugu, as well as sharing survey results.			High		
Continue working with NBVC Point Mugu, as well as sharing survey results regarding common natural resources management issues.			High		
Continue to provide environmental and natural resource training to CIANGS personnel.			High		
Incorporate new GIS data from surveys into the ANG GeoBase Program as needed.			Medium		
Review activities for potential to impact water resources, including jurisdictional waters.			High		
If an activity will impact a Waters of the US/wetlands work with the EM and the ANG NR Program Manager to identify permitting and mitigation requirements.			High		
Monitor at-risk sites to ensure erosion and sediment control measures are effective.			High		
Continue implementing SWPPP to maintain water quality.			High		
Continue to participate in community planning regarding water resources.			High		
Revegetate exposed soils with native species to reduce erosion.			High		
Use native plant species and materials for landscaping activities.			High		
Implement projects to remove/replace incompatible landscaping (e.g. pine trees creating fire hazards near POL storage).			Medium		
Support the Safety Office in their implementation of the BASH Plan.			High		
Monitor federal and state changes to listed species.			High		
Review activities for potential to impact listed species and identify options to minimize those impacts.			High		
Identify what actions need to be taken to address the findings of the Flora and Fauna studies.			High		
Support the IPMCs implementation of the IPM Plan.			High		
Implement agreed upon actions identified in the Urban Tree Management Plan.			High		
Summary:					

10.0 INRMP IMPLEMENTATION, UPDATE, AND REVISION PROCESS

10.1 INRMP Implementation

In accordance with AFI 32-7064, an INRMP is considered implemented if an installation:

- Actively requests, receives, and uses funds for "must fund" projects and activities as defined by Chapter 4 of AFI 32-7001 (Environmental Quality Programming and Budgeting).

- Executes all "must fund" projects and activities in accordance with specific time frames identified in the INRMP.
- Prepares the INRMP in cooperation with appropriate stakeholders. Notifies stakeholders when a new or revised INRMP will be prepared, and solicits participation and input to the INRMP development and review process.
- Ensures that sufficient numbers of professionally trained natural resources management personnel are available to perform the tasks required by the INRMP.
- Ensures INRMP has been approved in writing by the appropriate representative from each cooperating agency within the past five years.
- Reviews the INRMP annually and coordinates annually with cooperating agencies.
- Establish and maintain regular communications with the appropriate federal and state agencies for the region where the installation is located.
- Documents specific INRMP action accomplishments undertaken each year.
- Ensures INRMP updates and reviews are conducted in cooperation with the USFWS, CDFW, and National Oceanic and Atmospheric Administration (NOAA), where applicable.
- Ensures the INRMP implements ecosystem management on Air Force installations by setting goals for attaining a desired land condition.

Natural resource and land use management issues are not the only factors contributing to the development and implementation of the INRMP. Facility management and other seemingly unrelated issues affect implementation. It is important to the implementation of this INRMP that CIANGS personnel take ownership of the INRMP to provide the necessary resources (i.e., personnel and equipment), and to utilize the appropriate funding allocated by the ANG NGB/A4AM to enact the INRMP. It is extremely important that the INRMP Working Group continue to participate in the implementation of this INRMP. The INRMP Working Group is made up of the key CIANGS personnel and has an oversight role to ensure the effective implementation of this INRMP. Top- and middle-level management representation, as well as representation from several individuals with day-to-day on-site experience will provide the INRMP Working Group with the leadership and structure necessary for the successful implementation of this INRMP.

10.1.1 Monitoring INRMP Implementation

10.1.1.1 CIANGS INRMP Implementation Analysis

The CIANGS INRMP implementation will be monitored for meeting the legal requirements of the Sikes Act as well as for other mission and biological measures of effectiveness. The ultimate successful implementation of this INRMP is realized in no net loss in the capability of the CIANGS training lands to support the military mission while at the same time providing effective natural resources management.

In order to monitor and evaluate the effectiveness of the INRMP implementation the following will be reviewed as applicable and discussed within the context of the annual review and/or a formal review of operation and effect:

- Impacts to/from the military mission;
- Conservation program budget;

- Staff requirements;
- Program and project implementation;
- Trends in species and habitat diversity as evidenced by recurring biological surveys, land use changes, and opinions of natural resource experts;
- Compliance with regulatory requirements; and,
- Feedback from military trainers, the USFWS, the CDFW, and others.

Some of these areas may not be looked at every year due to lack of data or pertinent information. The effectiveness of the INRMP as a mission enabling conservation tool will be decided by mutual agreement of the USFWS, the CDFW, and the CIANGS during annual reviews and/or reviews for operation and effect.

10.1.1.2 USAF and DoD INRMP Implementation Monitoring

The USAF uses the Defense Environmental Programs Annual Report to Congress (DEPARC) to monitor Sikes Act compliance. DEPARC is the automated system used to collect installation environmental information for reporting to DoD and Congress. Established to fulfill an annual requirement to report the status of DoD's Environmental Quality program to Congress, DEPARC collects information on enforcement actions, inspections and other performance measures for high-level reports and quarterly reviews. DEPARC also helps the USAF track fulfillment of DoD Measures of Merit requirements. The Deputy under Secretary of Defense's (DUSD) Updated Guidance for Implementation of the Sikes Act also includes an updated Conservation Metrics for Preparing and Implementing INRMPs section. Progress toward meeting these measures of merit is reported in the annual report to Congress.

10.1.2 Priorities and Scheduling

The Office of Management and Budget considers funding for the preparation and implementation of this INRMP, as required by the Sikes Act, to be a high priority. However, the reality is that not all of the projects and programs identified in this INRMP will receive immediate funding. Therefore, projects need to be funded consistent with timely execution to meet future deadlines. Projects are generally prioritized with respect to compliance. Highest priority projects are projects related to recurring or current compliance, and these are generally scheduled earliest. The prioritization of the projects is based on need, legal drivers, and ability to further implementation of the INRMP.

Current compliance includes projects and activities needed because an installation is currently or will be out of compliance if projects or activities are not implemented in the current program year. Examples include:

- Environmental analyses, monitoring, and studies required to assess and mitigate potential effects of the military mission on conservation resources;
- Planning documents;
- Baseline inventories and surveys of natural and cultural resources (historical and archaeological sites);
- Biological Assessments (BAs), surveys, or habitat protection for a specific listed species;
- Mitigation to meet existing regulatory permit conditions or written agreements.
- Wetland delineations in support of subsequent jurisdictional determinations;

- Efforts to achieve compliance with requirements that have deadlines that have already passed; and,
- Initial documenting and cataloging of archaeological materials.

Maintenance requirements include those projects and activities needed that are not currently out of compliance but shall be out of compliance if projects or activities are not implemented in time to meet an established deadline beyond the current program year. Examples include:

- Compliance with future requirements that have deadlines;
- Conservation and GIS mapping to be in compliance;
- Efforts undertaken in accordance with non-deadline specific compliance requirements of leadership initiatives;
- Wetlands enhancement, in order to achieve the executive order for no net loss or to achieve enhancement of existing degraded wetlands; and,
- Public education programs that educate the public on the importance of protecting natural resources.

Lower priority projects include those that enhance conservation resources of the installation mission or are needed to address overall environmental goals and objectives but are not specifically required under regulation or EO and are not of an immediate nature. These projects are generally funded after those of higher priority are funded. Examples include:

- Community outreach activities, such as Earth Day and Historic Preservation Week activities;
- Educational and public awareness projects, such as interpretive displays, oral histories, nature trails, wildlife checklists, and conservation teaching materials;
- BAs, biological surveys, or habitat protection for a non-listed species;
- Restoration or enhancement of cultural or natural resources when no specific compliance requirement dictates a course or timing of action; and
- Management and execution of volunteer and partnership programs.

10.1.3 Funding

Implementation of this INRMP is subject to the availability of annual funding. Funding sources for specific projects can be grouped into three main categories by source: federal ANG NGB funds, other federal funds, and non-federal funds. When projects identified in the plan are not implemented due to lack of funding, or other compelling circumstances, the installation will review the goals and objectives of this INRMP to determine whether adjustments are necessary. Funding options include:

- The Legacy Resource Management Program provides financial assistance to DoD efforts to conserve natural and cultural resources on federal lands. Legacy projects could include regional ecosystem management initiatives, habitat preservation efforts, archeological investigations, invasive species control, and/or flora or fauna surveys. Project proposals are submitted to the Legacy program during their annual funding cycle (https://www.denix.osd.mil/legacy/home/),
- There are also grant and assistance programs administered by other federal agencies that could be accessed for natural resources management at CIANGS. Examples include funds associated with the CWA and endangered species.
- Other non-federal funding sources that could be considered include The Public Lands Day Program, which coordinates volunteers to improve the public lands they use for recreation,

education, and enjoyment, and the National Environmental Education and Training Foundation, which manages, coordinates, and generates financial support for the program (https://www.neefusa.org/npld).

- CIANGS may consider entering into cooperative or mutual aid agreements with states, local governments, non-governmental organizations, and other individuals.

10.1.4 Cooperative Agreements

The DoD and subcommand entities have MOU, Memorandums of Agreement (MOA), and other cooperative agreements with other federal agencies, conservation and special interest groups, and various state agencies in order to provide assistance with natural resources management at installations across the US. Generally, these agreements allow installations and agencies or conservation and special interest groups to obtain mutual conservation objectives. The DoD agreements applicable to CIANGS include:

- MOU between DoD and USFWS/ International Fund for Animal Welfare (IFWA) for a Cooperative Integrated Natural Resource Program associated with the ecosystem-based management of fish, wildlife, and plant resources on military lands (2006).
- MOU between DoD and USFWS/ IFAW to promote the conservation of migratory birds (2011).
- MOU between the DoD and US EPA to form a working partnership to promote environmental stewardship by adopting integrated pest management strategies to reduce the potential risks to human health and the environment associated with pesticides (2012).
- MOA for federal Neotropical Migratory Bird Conservation Program and addendum (Partners in Flight-Aves De Las Americas) among DoD, through each of the Military Services, and over 110 other federal and state agencies and non-governmental organizations (1991).
- MOU between the DoD and Ducks Unlimited, Inc. to provide a foundation for cooperative development of selected wetlands and associated uplands in order to maintain and increase waterfowl populations and to fulfill the objectives of the North American Waterfowl Management Plan, within the context of DoD's environmental security and military missions (2006).
- MOU between DoD and NRCS to promote cooperative conservation where appropriate (2006).
- MOU with Watchable Wildlife Incorporated (2002).
- MOU between the DoD and BCI to identify, document and maintain bat populations and habitats on DoD installations (2011).
- Cooperative Agreement between DoD and The Nature Conservancy to work cooperatively in areas of mutual interest (2010).
- Interagency Agreement (2010) and MOU (2009) between USAF and US Forest Service (USFS) to enhance cooperation and improve public service, and management of natural and cultural resources on lands managed by the USAF and the USFS.
- MOA (2003) between FAA, USAF, US Army, US EPA, USFWS, and USDA to address aircraft-wildlife strikes, available at https://www.faa.gov/airports/environmental/media/wildlife-hazard-mou-2003.pdf.

For a further list of cooperative agreements and MOUs please visit http://www.denix.osd.mil/nr/legislationandpolicy/mousandmoas/

https://www.denix.osd.mil/announcements/unassigned/sikes-tripartite-mou/
https://www.denix.osd.mil/arc/derpfy2002/unassigned/appendix-d-interagency-agreements-dsmoas-atsdr-and-cooperative-agreements-derp-fy02/

10.1.5 Consultations Requirements

The CIANGS has multiple natural resources consultation requirements in addition to the INRMP development and review requirements as identified in the Sikes Act. Federally listed species management requires ESA Section 7 consultation with the USFWS. State-listed species management, as well as game species management, requires consultation with CDFW. Actions that fall under the jurisdiction of Section 404 or 401 of the CWA necessitate permitting from MDEP, while Section 404 actions necessitate permitting from the State Water Resources Control Board (SWRCB) and/or the RWQCBs. In addition to natural resources consultation requirements, there are National Historic Preservation Act (NHPA) and tribal consultation requirements, which are presented in the Cultural Resources Survey (CAANG 2014).

10.2 Annual INRMP Review and Coordination Requirements

Per DoD policy, the CIANGS will review the INRMP annually in cooperation with the USFWS and CDFW. On an annual basis, the EM will invite the USFWS Regional Office, the USFWS local field office, the CDFW, and ANG NGB/A4AM to attend a meeting or participate in a conference call to review previous year INRMP implementation and discuss implementation of upcoming programs and projects. Invitations will be either by letter or email. Attendance is at the option of those invited, but at minimum the USFWS local field office and one representative of CDFW are expected to attend. The meeting will be documented with an agenda, meeting minutes and sign-in roster of attendees.

At this annual meeting the need for updates or revisions will be discussed. If updates are needed, the CIANGS will initiate the updates and after agreement of all three parties they will be added to the INRMP. If it is determined that major changes are needed, all three parties will provide input and an INRMP revision will be initiated with CIANGS acting as the lead coordinating agency. The annual meeting will be used to expedite the more formal review for operation and effect and if all parties agree and document their mutual agreement, it can fulfill the requirement to review the INRMP for operation and effect.

If not already determined in previous annual meetings, by the fourth year annual review a determination will be made jointly to continue implementation of the existing INRMP with updates or to proceed with a revision. If the parties feel that the annual reviews have not been sufficient to evaluate operation and effect and they cannot determine if the INRMP implementation should continue or be revised, a formal review for operation and effect will be initiated. The determination on how to proceed with INRMP implementation or revision will be made after the parties have had time to complete this review.

As part of the annual review, the CIANGS will specifically:

- Invite feedback from USFWS and CDFW on the effectiveness of the INRMP;
- Inform USFWS and CDFW which INRMP projects and activities are required to meet current natural resources compliance needs; and,
- Document specific INRMP action accomplishments from the previous year.

10.3 INRMP Update, and Revision Process

10.3.1 Review for Operation and Effect

Not less than every 5 years, the INRMP will be reviewed for operation and effect to determine if the INRMP is being implemented as required by the Sikes Act and contributing to the management of natural resources at CIANGS. The review will be conducted by the three cooperating parties to include the Commander responsible for the INRMP, the Supervisor of the USFWS California Field Office, and Secretary of the CDFW. While these are the responsible parties, technical representatives generally are the personnel who actually conduct the review.

The review for operation and effect will either conclude that the INRMP is meeting the intent of the Sikes Act and only needs an update and implementation can continue; or that it is not effective in meeting the intent of the Sikes Act and it must be revised. The conclusion of the review will be documented in a jointly executed memorandum, meeting minutes, or in some way that reflects mutual agreement.

If only updates are needed, they will be completed in a manner agreed to by all parties. The updated INRMP will be reviewed by the local USFWS field office in California and CDFW Secretary. Once concurrence letters or signatures are received from the Supervisor of the USFWS California Field Office and the CDFW Commissioner, the update of the INRMP will be complete and implementation will continue. Generally, the environmental impact analysis will continue to be applicable to updated INRMPs, and a new analysis will not be required.

If a review of operation and effect concludes that an INRMP must be revised, there is no set time to complete the revision. The existing INRMP remains in effect until the revision are complete and USFWS and CDFW concurrence on the revised INRMP is received. The CIANGS will endeavor to complete such revisions within 18 months depending upon funding availability. Revisions to the INRMP will go through a detailed review process similar to development of the initial INRMP to ensure CIANGS military mission, USFWS, and CDFW concerns are adequately addressed, and the INRMP meets the intent of the Sikes Act.

11.0 APPENDICES

APPENDIX A. REFERENCES

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APPENDIX B. LAW, REGULATIONS, POLICIES, AND EXECUTIVE ORDERS

Federal Laws

American Indian Religious Freedom Act of 1978 (Public Law 95-341; 42 USC §1196) – requires the US, where appropriate, to protect and preserve religious rights of the American Indian, Eskimo, Aleut, and Native Hawaiians, including but not limited to access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites.

Animal Damage Control Act of 1931 (7 USC §426 et seq.) – provides broad authority for investigation, demonstrations and control of mammalian predators, rodents and birds.

Anti-Deficiency Act of 1982 (31 USC §1341 et seq.) - provides that no federal official or employee may obligate the government for the expenditure of funds before funds have been authorized and appropriated by Congress for that purpose.

American Antiquities Act of 1906 (Public Law 59-209; 16 USC §431-433) – authorizes the President to designate historic and natural resources of national significance, located on federal lands, as National Monuments for the purpose of protecting items of archeological significance.

Archeological and Historical Preservation Act of 1974 (Public Law 95-96; 16 USC §469 et seq.) – provides for the preservation of historical and archeological data, including relics and specimens, threatened by federally funded or assisted construction projects.

Archeological Resources Protection Act of 1979 (16 USC §470 et seq.) – prohibits the excavation or removal from federal or Indian lands any archeological resources without a permit.

Bald Eagle Protection Act of 1940 (Public Law 87-884; 16 USC §668a-d) – prohibits the taking or harming (i.e. harassment, sale, or transportation) of bald eagles or golden eagles, including their eggs, nests, or young, without appropriate permit.

Clean Air Act of 1970 (42 USC §7401 et seq.) – regulates air emissions from stationary, area, and mobile sources. This law authorizes the US EPA to establish National Ambient Air Quality Standards (NAAQS) to protect public health and the environment.

Clean Water Act of 1972 (Public Law 92-500; 33 USC §1251 et seq.) – aims to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. Under Section 401, states have authority to review federal permits that may result in a discharge to wetlands or water bodies under state jurisdiction. Under section 404, a program is established to regulate the discharge of dredged or fill material into the Nation's waters, including wetlands.

Coastal Zone Management Act of 1972 (Public Law 92-583; 16 USC §1451 et seq.) – provides incentives for coastal states to develop coastal zone management programs. Federal actions that impact the coastal zone must be consistent to the maximum extent practicable with the state program.

Conservation and Rehabilitation Program on Military and Public Lands (Public Law 93-452; 16 USC §670 et seq.) – provides for fish and wildlife habitat improvements, range rehabilitation, and control of off-road vehicles on federal lands.

Conservation Programs on Military Reservations (Public Law 90-465; 16 USC §670 et seq.) – Requires each military department to manage natural resources and to ensure that services are provided which are necessary for management of fish and wildlife resources on each installation; to provide their personnel with professional training in fish and wildlife management; and to give priority to contracting work with federal and state agencies that

have responsibility for conservation or management of fish and wildlife. In addition, it authorizes cooperative agreements (with states, local governments, non-governmental organizations, and individuals) which call for each party to provide matching funds or services to carry out natural resources projects or initiatives.

Endangered Species Act of 1973, as amended (16 USC §1531 et seq.) – provides for the identification and protection of threatened and endangered plants and animals, including their critical habitats. Requires federal agencies to conserve threatened and endangered species and cooperate with state and local authorities to resolve water resources issues in concert with the conservation of threatened and endangered species. This law establishes a consultation process involving federal agencies to facilitate avoidance of agency action that would adversely affect species or habitat. Further, it prohibits all person's subject to US jurisdiction from taking, including any harm or harassment, endangered species.

Federal Insecticide, Fungicide, and Rodenticide Act of 1947 (Public Law 92-516; 7 USC §136 et seq.) – governs the use and application of pesticides in natural resource management programs. This law provides the principal means for preventing environmental pollution from pesticides through product registration and applicator certification.

Federal Land Policy and Management Act of 1976 (43 USC §1701) – establishes public land policy and guidelines for its administration and provides for the management, protection, development, and enhancement of the public lands.

Federal Noxious Weed Act of 1974 (Public Law 93-629; 7 USC §2801) – provides for the control and eradication of noxious weeds and their regulation in interstate and foreign commerce.

Fish and Wildlife Conservation Act of 1980 (Public Law 96-366; 16 USC §2901 et seq.) – encourages management of non-game species and provides for conservation, protection, restoration, and propagation of certain species, including migratory birds threatened with extinction.

Fish and Wildlife Coordination Act of 1934 (16 USC §661 et seq.) – provides a mechanism for wildlife conservation to receive equal consideration and coordinate with water-resource development programs.

Land and Water Conservation Act of 1965 (16 USC §4601 et seq.) – assists in preserving, developing, and assuring accessibility to outdoor recreation resources.

Migratory Bird Conservation Act of 1929 (16 USC §715 et seq.) – establishes a Migratory Bird Conservation Commission to approve areas recommended by the Secretary of the Interior for acquisition with Migratory Bird Conservation Funds.

Migratory Bird Treaty Act of 1918 (Public Law 65-186; 16 USC §703 et seq.) – provides for regulations to control taking of migratory birds, their nests, eggs, parts, or products without the appropriate permit and provides enforcement authority and penalties for violations.

National Environmental Policy Act of 1969 (Public Law 91-190; 42 USC §4321 et seq.) – mandates federal agencies to consider and document environmental impacts of proposed actions and legislation. In addition, it mandates preparation of comprehensive environmental impact statements where proposed action is "major" and significantly affects the quality of the human environment.

Native American Graves Protection and Repatriation Act of 1990 (Public Law 101-601; 25 USC §§3001-3013) – addresses the recovery, treatment, and repatriation of Native American and Native Hawaiian cultural items by federal agencies and museums. It includes provisions for data gathering, reporting, consultation, and issuance of permits.

Resource Conservation and Recovery Act of 1976 (42 USC §6901 et seq.) – establishes a comprehensive program which manages solid and hazardous waste. Subtitle C, Hazardous

Waste Management, sets up a framework for managing hazardous waste from its initial generation to its final disposal. Waste pesticides and equipment/containers contaminated by pesticides are included under hazardous waste management requirements.

Sikes Act Improvement Act of 1997 (Public Law 105-85; 16 USC §670a et seq.) – amends the Sikes Act of 1960 to mandate the development of an integrated natural resources management plan through cooperation with the Department of the Interior (through the USFWS), Department of Defense, and each state fish and wildlife agency for each military installation supporting natural resources.

Soil Conservation Act of 1935 (16 USC §590a *et seq*.) – provides for soil conservation practices on federal lands.

Federal Regulations

40 CFR 1500-1508 – Council on Environmental Quality (CEQ) Regulations on Implementing NEPA Procedures

40 CFR 6 – US EPA Regulations on Implementation of NEPA Procedures

40 CFR 162 – US EPA Regulations on Insecticide, Fungicide, and Rodenticide Use

15 CFR 930 – Federal Consistency with Approved Coastal Management Programs

50 CFR 17 – USFWS list of Endangered and Threatened Wildlife

50 CFR 10.13 – List of Migratory Birds

32 CFR 190 – Natural Resources Management Program

Federal Executive Orders

Environmental Safeguard for Activities for Animal Damage Control on Federal Lands (EO 11870) - restricts the use of chemical toxicants for mammal and bird control.

Exotic Organisms (EO 11987) – restricts federal agencies in the use of exotic plant species in any landscape and erosion control measures.

Energy Efficiencies and Water Conservation at Federal Facilities (EO 12902) – federal agency use of energy and water resources is directed towards the goals of increased conservation and efficiency.

Floodplain Management (EO 11988) – specifies that agencies shall encourage and provide appropriate guidance to applicant to evaluate the effects of their proposals in floodplains prior to submitting applications. This includes wetlands that are within the 100-year floodplain and especially discourages filling.

Off-Road Vehicles on Public Lands (EO 11989) – The respective agency shall determines that the use of off-road vehicles will cause or is causing considerable adverse effects on the soil, vegetation, wildlife, wildlife habitat or cultural or historic resources of particular areas or trails of the public lands, immediately close such areas or trails to the type of off-road vehicle causing such effects, until such time as he determines that such adverse effects have been eliminated and that measures have been implemented to prevent future recurrence.

Greening the Government through Leadership in Environmental Management (EO 13148) – requires the head of each federal agency to be responsible for ensuring that all necessary actions are taken to integrate environmental accountability into agency day-to-day decision making and long-term planning processes across all agency missions, activities, and functions.

Indian Sacred Sites (EO 13007) – provides for the protection of and access to Indian sacred sites.

Intergovernmental Review of Federal Programs (EO 12372) – structures the federal government's system of consultation with state and local governments on its decisions involving grants, other forms of financial assistance, and direct development.

Invasive Species (EO 13112) – directs federal agencies to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause.

Protection and Enhancement of Environmental Quality (EO 11514) – provides for environmental protection of federal lands and enforces requirements of NEPA.

Protection of Wetlands (EO 11990) – directs all federal agencies to take action to minimize the destruction loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands. This applies to the acquisition, management, and disposal of federal lands and facilities; to construction or improvements undertaken, financed, or assisted by the federal government; and to the conduct of federal activities and programs which affect land use.

Responsibilities of Federal Entities to Protect Migratory Birds (EO 13186) – directs all federal agencies taking actions that have a potential to negatively affect migratory bird populations to develop and implement a Memorandum of Understanding with the USFWS by January 2003 that shall promote the conservation of migratory bird populations.

DoDI, AFI, & Air Force Pamphlets (PAM)

DoDI 4715.03 – Natural Resources Conservation Program
DoDI 4165.57 – Air Installations Compatible Use Zones
DoDI 4150.07 – Pest Management Program
DoDI 6055.06 – Fire and Emergency Services Program
AFI 32-7061 – Environmental Impact Analysis Process
AFI 32-7064 – Integrated Natural Resources Management
AFI 32-1053 – Integrated Pest Management Program
AFI 32-7062 – Air Force Comprehensive Planning
AFI 32-7065 – Cultural Resources Management
AFPAM 91-212 – BASH Techniques

Department of Defense Memoranda

Memorandum, Assistant Deputy Under Secretary of Defense (Environment, Safety and Occupational Health), 20 Sept 11, Subject: Interim Policy on Management of White Nose Syndrome in Bats.

Memorandum, Assistant Deputy Under Secretary of Defense (Environment, Safety and Occupational Health), 3 Apr 07, Subject: Guidance to Implement the Memorandum of Understanding to Promote the Conservation of Migratory Birds.

Memorandum, Assistant Deputy Under Secretary of Defense (Environment, Safety and Occupational Health), 14 Aug 06, Subject: Integrated Natural Resource Management Plan (INRMP) Template

Memorandum, Assistant Deputy Under Secretary of Defense (Environment, Safety and Occupational Health), 17 May 05, Subject: Implementation of Sikes Act Improvement Amendments: Supplemental Guidance concerning Leased Lands

Memorandum, Assistant Deputy Under Secretary of Defense (Environment, Safety and Occupational Health), 1 Nov 04, Subject: Implementation of Sikes Act Improvement Amendments: Supplemental Guidance concerning INRMP Reviews

Memorandum, Deputy Under Secretary of Defense (Installations and Environment), 10 Oct 02, Subject: Implementation of Sikes Act Improvement Act: Updated Guidance

Memorandum, Assistant Deputy Under Secretary of Defense (Environment), 5 Aug 02, Subject: Access to Outdoor Recreation Programs on Military Installations for Persons with Disabilities.

Memorandum, Assistant Secretary of Army (Environment, Safety and Occupational Health), Deputy Assistant Secretary of the Navy (Environment), Deputy Assistant Secretary of the Air Force (Environment, Safety and Occupational Health), 20 Sep 11, Subject: Interim Policy on Management of White Nose Syndrome in Bats.

State

California Coastal Act (Cal. Pub. Res. Code §30000 et seq.) – governs all development along the California coast, and mandates the protection of public access, recreational opportunities, and marine and land resources.

California Endangered Species Act (Cal. Pub. Res. Code §2050 et seq.) – provides for the protection of all threatened and endangered native fish, amphibians, reptiles, birds, mammals, invertebrates, and plants, including their habitats.

California Environmental Quality Act (Cal. Pub. Res. Code §21000 et seq.) – requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impact, if feasible. This applies to all projects, defined as activities that are undertaken by a public agency or those that require the discretionary approval of a public agency.

Keene-Nejedly California Wetlands Protection Act as updated (Cal. Pub. Res. Code §5810-1518) – guides the acquisition, protection, preservation, restoration, and enhancement of wetlands, including funding requirements and the priority status of specific proposed wetlands projects.

Porter-Cologne Water Quality Control Act (Cal. Pub. Res. Code §13000 et seq.) – assigns overall responsibility for water rights and water quality protects to the state Water Resource Control Board and directs the development and enforcement of water quality standards within regional boundaries.

California Wetlands Conservation Policy – In August 1993, Governor Wilson announced his "California Wetlands Conservation Policy," created by Executive Order W-59-93. The goals of the policy are to ensure no overall net loss and achieve a long-term net gain in the quantity, quality, and permanence of wetlands acreage; to reduce procedural complexity in the administration of state and federal wetlands conservation programs; and to encourage partnerships to make landowner incentive programs and cooperative planning efforts the primary focus of wetlands conservation and restoration.